WEDNESDAY, AUGUST, 30

001. STS Across Borders
Special Event
9:15 to 10:45 am
Sheraton Boston: Floor 3 - Beacon D

This informal, pre-meeting will provide an opportunity for STS scholars from different regions and networks to meet, and learn about different STS contexts, genealogies and approaches. Participants are invited to contribute reference material in advance, addressing preliminary queries that will help draw out critical differences and comparisons, shared concerns, and possibilities for collaboration. Contributed material will be curated and shared in advance of the meeting. The meeting will lay ground for continued dialogue and planning -- focused, in part, on the 4S 2018 meetings in Sydney, where the theme will be Transnational STS. To contribute material for this meeting, contact Kim Fortun (kfortun@uci.edu). All are welcome to attend.

Chair: Kim Fortun, University of California Irvine

002. Disaster Prediction and Preparedness
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon A

Participants:
The Construction of an Earthquake Prediction Model in French Nuclear Risk Regulation during the 1970s Mathias Roger, IRSN

On March 11, 2011, a magnitude 9 earthquake triggered a 15 meter tsunami which flooded the Fukushima Daichii nuclear power plant, leading to a nuclear accident. Protective devices against flood risks were designed on the presumption of a 5.7 meter tsunami. On the one hand, this example demonstrates how a proper hazard assessment is vital to prevent accidents in high-risk industries. On the other hand, it questions the process that led to a 10 meter gap between prediction and reality. To grasp this issue, I am investigating earthquake prediction in French nuclear risk regulations during the 1970s. After the oil crisis of the early 1970s, the French state decided to launch one of the world's biggest civil nuclear programs with 19 power plants. In this context, French nuclear regulatory institutions worked on the establishment of an earthquake prediction model between 1975 and 1981. This model served to assess seismic risks on every site. This proposal aims to explore how a predictability methodology has been constructed in risk regulation systems, while considering industrial practices and needs, economic constraints, and modern scientific methods. To do so, this work integrates the analysis of a corpus of documents derived from French regulatory archives, made up of technical, scientific, and political documents including regulators, industrial developers, ministries and scientists. I will highlight here the ways in which concepts, techniques, and practices of 'predictability' are created and enacted.

Mathias Roger, IRSN

003. Democracy at Risk: Balancing the Benefits and Dangers of Emerging Technologies
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon A

From 3D-printing to bio-bricks, many of today's technological advances come in forms that are highly generative and distributed - shifts leading to transformative growth in the number and diversity of users and applications. New communities of technology users such as DIY bio labs, hacker spaces, and makers fairs leverage the networks and open information of the Internet and newly affordable tools and materials to build heterogeneous environments of learning and innovation with low barriers to entry. These technologies contrast with more capital intensive, closed, and hierarchically controlled predecessors. From nuclear power to assembly line manufacturing, previous comparable cutting edge technologies have, to varying degrees, been used mostly by elite actors to address a narrow band of societal, government, or commercial goals. The new generation of technologies and the communities and networks that have developed around them offer opportunities for education, innovation, and participation. But they also create risks. The papers of this panel consider the benefits and risks associated with emerging "democratizing technologies" through development of a theoretical model and a series of case studies. We build on literature concerned with risk assessment and governance, including Normal Accident and High Reliability theories, but suggest that these emerging technologies and user communities pose different types of risks and governance challenges. Considering both accidents and malicious actions, we develop a typological model to explain forms and levels of risk likely in different techno-social systems. Case studies examine applications of DIY bio, additive manufacturing, and modular nuclear reactors as significant democratizations of conventional industries.

Participants:
The Do-It-Yourself Biology Community: Emergent Techno-Social Dynamics in the Age of Democratizing Technologies Yong-Bee Lim, George Mason University

Contemporary works on technology in STS deal with the
development and assessment of democratizing technologies. Democratizing technologies are characterized by increases on two dimensions: availability of a technology (distribution) and capacity of a technology “to produce unprompted change driven by large, varied, and uncoordinated audiences” (generativity). With falling costs, more versatile tools, and internet-facilitated information sharing, biotechnology is becoming more distributed and generative. The interactions between democratized biotechnology and the social rise of individualized practice have enabled the co-production of the unique techno-social group called Do-It-Yourself Bio (DIYBio). DIYBio represents a departure from traditional bioscience infrastructures like the U.S. Biodefense industry. It is decentralized, requires little capital, and has few regulations. These differences allow DIYBio to conduct non-traditional bioscience ventures including community education, creating vegan cheese through synthetic biology, and allowing members to engage DIYBio projects through a hedonizing frame. However, the decentralized nature of DIYBio not only exacerbates existing concerns of both bioerror and bioterror; they highlight an underexplored area of technological risk. This paper uses DIYBio as a case study to provide guidance on this emerging area of technological risk. A new model is proposed that builds upon prior centralized systems models, including Normal Accident Theory and High Reliability Theory, but emphasizes the decentralized nature of democratizing technology systems. By emphasizing the unique characteristics of decentralized systems, namely the vast increase in the heterogeneity of actors and interests, this new model provides novel insights on how internal and external threats differ between traditional and democratizing technologies systems.

The Intersection of Distributed, Generative Technologies and Governance: Additive Manufacturing as Democratizing Daniel Alexander Tapia-Jimenez, University of California, Davis (UCD)

“Emerging technology” is shorthand for a recent class of technology that differs in fundamental ways from conventional technologies. Compared to conventional technologies, where large-scale sociotechnical systems formed highly centralized industrial and military complexes, emerging technologies are often small-scale and decentralized. Further, these technologies generative in that they are more accessible, adaptable and efficient in their application to problems. A contemporary example is additive manufacturing, a widely distributed and generative platform for producing objects. Consequently, wider distribution of means can accommodate a greater diversity of ends. Some of these ends are beneficial, such as advancing citizen science or driving technological democratization. Others are detrimental, like endangering the environment or subverting institutions. The interplay between the reorganization of socio-economic behavior around these technologies and their political consequences is the distinguishing feature rather than the novelty of the artifacts. The opportunities posed by such technologies necessitate new models of governance that balance innovation potential with perceived levels of acceptable risk. Exploring these models involves two exercises: characterizing emerging technologies along dimensions that render them distinct from established technologies, then relating them to discourses surrounding the conceptualization and evaluation of technological risk. This paper argues that emerging technologies are distinct in their increasing distribution and generativity which poses a different problem set than previous technologies. This framework addresses gaps in the understanding of emerging technological risk, as well as governments’ role in mitigation. By engaging these typological dimensions, this paper seeks to better prepare future discussions of emerging technologies and their political consequences.

Small Modular Reactors: Safety and Security Concerns on the Spectrum of Shifting Technologies Eric Bronn Jacobson, Center for Global Security Research/ Lawrence Livermore National Laboratory

In STS, democratizing technologies are often differentiated from conventional technologies by emphasizing two key factors: the number of potential actors (distribution) and the applications for a given technology (generativity). In the spectrum of conventional to democratizing technologies, small modular reactors (SMRs) represent an intermediate transition by remaining relatively centralized (spurred by high capital investment costs and Nuclear Regulatory Commission (NRC) licensing requirements) and limited generativity (electricity generation, materials for nuclear weapon production, and certain industrial applications). SMRs lower relative capital costs and increase safety which increases distribution by allowing for more potential entrants into the nuclear power marketplace. However, even though SMRs hope to use increased safety measures to break away from pitfalls associated with previous nuclear accidents, this increase in total entrants exacerbates security concerns which are not addressed by traditional theories associated with safety. With more SMRs required to obtain the same power output of a large conventional reactor, both external (terrorist attacks on reactors) and internal (proliferation) risks increase, especially when using highly enriched fuel. This paper examines SMRs, the latest iteration of nuclear technology, as a case study of shifting safety and security concerns as distribution increases with generativity remaining at previous levels. In addressing the rise of SMR technology, the paper applies a new risk model that takes Normal Accident Theory and High Reliability Theory (that dealt with centralized technologies,) and evolves it into new risk typology framework to address the rise of decentralized technologies that escalate internal and external security risks.

Black Box Medical Devices and Struggles for Equitable Design: Conundrums of Practice Jose F Gomez-Marquez, MIT; Amy Moran-Thomas, MIT

Black box design in healthcare prevents users from making meaningful contributions to the design of medical devices, and often prohibits people from being able to maintain or repair their devices without expert intervention. Yet efforts to rework black box exclusions toward more equitable forms of innovation often face particular dilemmas of when they make steps toward putting the insights of democratic design into practice. Unfolding as a dialogue between a medical device designer and an anthropologist, this paper delves into our respective experiences and frustrations with glucometer machines as a launching point to examine broader questions at the intersections of STS and social justice projects. Using diabetes care technologies as a case study, we each trace stories of how an institutional culture of transparent design slowly evolved into a guild of highly proprietary industries, and juxtapose this history with ethnographic details of these processes’ implications for people living with diabetes worldwide. We also examine different response vehicles that are emerging from underground medical innovators, aided by adjacent cultures of creation from communities like the maker movement, patient advocates, academic researchers — discussing both the possibilities of key efforts, as well as the ethical conundrums that their participants engage. We conclude with a discussion of recent work at the MIT Little Devices Lab to materially deconstruct how a “black box” is made around a glucometer, as an example of the critical potentials of working toward more open design through literal rewiring.

Chair: Jaclyn Kerr, Lawrence Livermore National Laboratory/ Stanford University

Discussant: Jaclyn Kerr, Lawrence Livermore National Laboratory/ Stanford University

004. Textual Analysis and Working with Big Data

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon E

Participants:
**The Geopolitics of Knowledge Production on the Agrarian Question: The Debate among Editors of Agrarian Studies in International Journals**

The object of study is the center-periphery relation in the production of sociological knowledge on the agrarian question in the debate between editors of "The Agrarian South: Journal of Political Economy (AS)" and "The Journal of Agrarian Change (JAC)," scholarly journals of international circulation. This work is aimed at understanding the geopolitics of the construction of knowledge on the agrarian question, through the analysis of the scientific production of editors in international scientific journals.

The analyses of papers published by the editors in AS and JAC revealed that different stands are taken by editors of each journal. Those stands bear a relation amidst the "geopolitical place" from which publishers observe and interpret contexts, in the central countries or peripheral countries. There also a rotation of the classic controversy of the agrarian question in the Marxist research program: the extinction or permanence of peasant reproduction.

Understanding Big Data and the Associated Epistemologies in Healthcare: A Discourse Analysis of Scientific Editorials

The healthcare sector experiments with the current possibilities of data-driven knowledge production and the associated epistemologies. Traditionally, the sector has adopted extensive practices of randomized controlled trials and systematic reviews as a "gold standard" to find evidence that can be used in treatment protocols and medical guidelines. Yet, as big data promises to provide quicker, more and real world information about health and healthcare, these established epistemologies are being questioned. Many public and policy discussions about big data in healthcare are limited to a one-sided rhetoric that is either utopian or dystopian. According to the utopian rhetoric big data offers the way to accomplish personalized, efficient and effective care. Yet, according to the dystopian rhetoric big data is troubling because it enables invasions of privacy and leads to inequality. We opted to do a discourse analysis to move beyond these limited positions. Our discourse analysis investigates the various big data discourses that can be identified within the medical scientific community and maps the associated epistemological assumptions. To achieve this, our study reviewed editorials of scientific journals in the medical domain from 2012–2017. These editorials were systematically selected out of five literature databases. During the iterative review process our research focused in particular on rendering visible the underlying assumptions of authors regarding what they consider to be 'sufficient evidence' to base decisions on, whether big data changes our understanding of evidence and what the author implicitly considers to be crucial characteristics of big data. The study presents discourses in which the emergence of big data, the meaning of evidence and the possibilities of data-driven knowledge production are valued differently. We have identified six discourses, for example: the instrumental discourse (which can be linked to pragmatism) that implies that big data provides more patient-specific knowledge than the established research practices. Scholars in this discourse are positive about adopting big data practices and the use of big data outcomes as evidence for medical decision-making. The humanist discourse (which reasons from phenomenology) emphasizes that data always gathers only a subset of human experiences, behavior and relationships. Therefore, we should be careful with big data as the basis of our medical decision-making.

**A Study Based on Bibliometrics: Visual Sensibility Results in Citation Inflation for Top Scientific Achievements**

Images play important roles in communication among today’s scientists and are also closely associated with popular science. In recent years, many scientific institutions have encouraged the visualization of the latest scientific and engineering trends. Prestigious scientific journals such as Nature and Science also suggest that authors submit cover images to help highlight their achievements as including visual sensibility on the cover draws reader attention and alerts them to the value of the paper in question. Based on bibliometrics, this study analyzes publications of Nature, Science, and Cell along with their respective sub-journals since 2010, and includes 20392 papers as well as the corresponding 356 cover story images. Communication channels, research quality, and editor's selection, among others, are all factors that were also evaluated throughout the course of the study. There search shows that papers represented with an image on the journal’s cover gain at least a 205% increase in corresponding citations in academic literature than those published papers in the same journals but not represented on the cover. The exposure rate and corresponding awareness to cover images might further explain this phenomenon. When it comes to “cover story” papers, then, the citation rate is possibly significantly higher with the inclusion of a cover image. Communication channel analysis shows that the citation inflation due to quality differences is lower than 118%. It can therefore be concluded that it is visual sensibility, not a noticeable quality difference between papers, that leads to citation inflation for top scientific achievements.

**The Role of Gender and ‘Race’ Discourses in Scientific Knowledge Production and Society**

Science studies scholars have long argued that there is no separation between the production of scientific knowledge and the production of social structures and meaning. As Steven Epstein has shown, through the inclusion-and-difference paradigm, gender, ethnicity, and ‘race’ have been reciprocally constructed by the general population and biomedical researchers. The inclusion of categorical social identities in biomedical research contributes to decreasing inequality in biomedical outcomes, but also increasing salience of categories of difference framed in biological terms in society (Raz and Miller 2012, Duster 1990). This paper shows how new forms of meaning associated with social categorization loop simultaneously into biomedical research practice and wider society by focusing on the production of gender and ‘race’ as categories of difference (see Hacking 1995). While this issue has been analyzed using a range of qualitative methods, recent developments in quantitative text analysis allow for new understandings of how social meanings are simultaneously reconstructed. Utilizing texts of UK research articles and national newspaper articles in a quantitative co-occurrence text analysis, the paper shows how the discourses of gender and ‘race’ change over time in both national media and in biomedical research. It then demonstrates a clear link between changes in meaning in the discursive categories in both spheres by mapping semantic co-occurrence networks onto author citation networks, demonstrating how the social construction of categories of difference are associated with particular researchers and research programs. Combining these analyses, the paper ultimately details the nuanced interplay between science and popular culture in the construction of gender and ‘race’.

**The Experimental Reflexivity: Why Sociologists of Technology do not Patent?**

The presentation discusses the subject of "experimental reflexivity". Experimental reflexivity is the application of STS concepts and methods to understand the production of scientific and technological knowledge by the STS community itself. For this, the paper examines a paradox: why sociologists of technology rarely patent? To describe this phenomenon, the research is based on the following methodological procedures: a) a survey of patents eventually registered by the most cited sociologists of technology; b) a survey of patents registered by...
005. Making Sense of Practice by Engagement I

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon F

Building on discussions and presentations from 4S/EASST in Barcelona as well as other recent conferences, this open (and experimental) panel seeks to create spaces for alternative knowledge practices that examine the epistemological and discursive methods of creating and implementing different ways of knowing and imagining the world. This panel takes seriously Shapin and Schaffer’s claim that “solutions to the problem of knowledge are embedded within practical solutions to the problem of social order” (1985:15). We ask, “how have collectives of practice developed and what are the futures that these collectives imagine?” In conversation with the 2017 4S theme of (In)sensibilities, we hope to engage ways of sensing and sense-making that often exist on the margins or at the boundaries of dominant practices within science and technology. We encourage work that examines how practitioners interpret their own work and if alternatives are indeed as radical as initially assumed. Are alternative knowledge producers in dialogue with hegemonic practices, or are practitioners engaging in novel ways of mapping/charting scientific and epistemic terrains? Most importantly, we expect presenters to abandon the formal presentation style and come to panels prepared to engage the audience in short 15 minute workshop-type experiments that directly communicate alternative ways of making sense of practice. Based on the success of a similar panel we organized last year, we are prepared to work closely with presenters to ensure - at the very least - only partial failure.

Participants:

Knowledge Making Across the Social Body

Elizabeth Simpson
University of Illinois at Urbana-Champaign

Historically, the use of “embodied cognition” sought to distinguish itself from the assumption that cognition only happened in the brain. By contrast, Big Data promises the omniscience of surveillance and the infallibility of algorithms, offering disembodied processing as a way to render theoretical models, the people/bodies who generate them, and the geographies of their development irrelevant. In such a time, locating cognition in bodies and place becomes a distinction once again. But what are the affordances of once more tethering knowledge making to a set of bodies and their histories? Why, in practical rather than ethical terms, would an academic be interested in her body or her community as a knowledge-making resource? Drawing on practices of Image Theater, a form of Theater of the Oppressed, this activity will engage participants in visualizing themselves individually and collectively as STS scholars in the contemporary moment. Pursuing prompts that offer reflexivity about epistemological position, ethical location, methods, and collectivity in light of current political circumstances; participants will develop facility with these tools while using them to generate a collaborative visual map of our embodied academic practices and the social dynamics in which they are located. It will remind us that approaching our knowledge with an eye to its generative social locations reveals a thick and socially located history out of line with the origins stories that seat “pure” science in nature, re-seating us alongside one another.

Musical Expertise, Technical Knowledge and Collaborative Design Methods

Ezra Teboul, Rensselaer Polytechnic Institute

This proposal is for a discussion on the topic of homemade musical instruments and systems. It will cover concepts of performative and compositional expertise in today’s heavily technologized sound production and consumption environment. As demonstrated by scholars and composers such as David Tudor, Nic Collins and Tara Rodgers, homemade musical systems can be an active and open field for not only original conceptions of music, but also loci for questioning what musical expertise can mean, how it can be absorbed or transmitted, and finally, how it materializes cultural or personal norms as they relate to music and technology. Make and do it yourself practices, regardless of their connection to sound / art are by definition communal. Re-invention / consumption / black-boxing cycles effectively work to break apart explicit acknowledgements of functional or ornamental lineage through specific intellectual property rules relating to circuit and interface designs, as well as cultural norms relating to these technical practices. Through a combination of media archeology combined with rules borrowed from improvisatory composition and non-traditional circuit design, this abstract suggests that participative activities can be designed to actively resist this loss of agency without losing the open-ended spirit of circuit bending. By engaging with these topics in abstract ways (sound, images), this presentation allows for a degree of separation where technical decisions only have cultural consequences: by building synthesizers and the compositions they produce as a group activity, we can explicitly deconstruct some of the underlying implications and challenge the normalizing effect of our everyday design practices.

On Hospitality and Hope: Where Scientific and Technical Infrastructure Negotiates Its Insiders and Outsiders

Stephanie Steinhardt

Often we find that breakdowns occur by surprise through factors that lie just outside of even the best laid plans, forcing a remapping of territories where either an accommodation or wall is built for the new objects of consideration. Inspired by the recent uprising of radical art which has taken Derrida’s ‘absolute hospitality’ into more personal practices of inclusion and care in technological spaces, from cyberfeminist Laurence Rassell’s curation at Fundació Antoni Tàpies in Barcelona to Walker Tufts’ immersive Hospitality Machines installations, this talk explores questions of boundaries and accommodations where the external world comes up against the formalized plans and policies of infrastructure. In this way, hospitality becomes the welcoming and establishment of rules that allows infrastructures’ ends to adapt to the strangers, the foreign objects, and its flaws or gaps. Through ethnographic field work, this talk traces uncomfortable yet telling moments that define whose futures infrastructures are welcoming and whose they are turning away: for example, when initiatives for ecological research are delayed by unforeseen negotiations over native lands or oceanographic research equipment is vandalized by rebelling local fishing communities. Through the lens and vocabulary of hospitality, we see that infrastructure is necessarily both welcoming and excluding, identifying what categories are considered, what interruptions are permissible, what conditions of power and temporalities of those conditions exist, and what risks and contingencies are worth taking. In infrastructure, there is a constant negotiation and addressing of who and what will enter the realm of governance that it supports and whose progress it ushers in.

Chair:

Karin Parzke, State University of New York, College of Environmental Science and Forestry

Discussant:

Ellen Foster

006. Science, Technology and Sport I

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon G

While sport studies scholars have established sport as a key site of cultural meanings and social relations, fewer scholars have engaged these issues within technology and science studies frameworks. This panel invites papers broadly concerned with social and cultural inquiry into the intersection of science, technology, and sport. Potential topics include, but are not limited to: sport technologies and technologies of the active body;
issues related to medicine, risk and sport; performance enhancement and bioethics; (dis)ability, gender, race, class, and sexuality, technology and sport; sport analytics, data visualization, and the quantified self; professional gaming and eSports; and, infrastructure, sustainability, and sport.

Participants:

Examining Sports, Science, and Technology Studies Jennifer Sterling, University of Iowa; Mary McDonald, Georgia Institute of Technology

The study of science, technology, and sports is theoretically, substantively, methodologically, and disciplinarily diverse. Incorporating the rapid development of technologies and their expanding applications in sports—from telecommunicationsto high performance—interdisciplinary fields such as science and technology studies (STS) and the sociology of sport are tasked with interrogating the social, cultural, historical, and economic intersections of an ever-expanding techno-scientific landscape. In this paper we’ll examine research, past and present, situated at the intersections of STS and sports studies. In particular, we’ll discuss existing and emerging themes, issues, methodological concerns and theoretical debates that have shaped the two disciplinary fields and their interactions. In addition, an examination of these important exchanges will assist in illuminating the complicated relationships between science, technologies and sporting cultures, their contemporary and historical contexts, and disciplinary futures.

Race, Science, and the Sporting Bodies: The Scientific Construction of “Asian Physical Inferiority” Yu-Kwei Sun, Towson University

The imaginations of Asian bodies in the Western contexts have long been associated with certain physical and mental characteristics—weak, frail, small, docile, submissive, and lacking in physical strength, to name a few. This “Asian physical inferiority,” an essentialized and racist generalization of a wide variety of Asian populations, has been a popular racial ideology since the inception of European colonialism in Asia, and these racial stereotypes—strengthened by casual observations and questionable “scientific” research—continue to be circulated and reproduced in both public and private spaces in both Asia and America. This paper seeks to examine how the “weak Asian bodies” discourses have been articulated, challenged, or “reaffirmed” in scientific studies, specifically in the areas of exercise science, kinesiology, physical education, and sport studies. In the arena of sports and physical activity, racialized discourses in terms of athletic potential and physical capability are still prevalent. For example, research has shown that many physical education teachers believe that young Black males possess the “natural” (or biological) ability to excel in sports. (Fleming, 2001) Such discourse of Black athleticism—the naturalization of Black physical superiority—has been well-examined by Critical Sport Studies scholars. Yet, few have paid attention to the other side of this ideological spectrum, namely the perceived physical inferiority of the Asian bodies. Through analyzing academic literature and popular discourses revolving around Asian physicality, this paper seeks to provide a preliminary but nuanced insight on the articulation of racial science and sport. In addition, this paper aims to deconstruct the racial hierarchy of physicality: Black on the top, Asian on the bottom, and everything else somewhere in between.

The Building Bureau of the National Jewish Welfare Board, Gender Integration at Jewish Ys, and Reforming Athletic Spaces Linda J Borish, Western Michigan University

This interdisciplinary paper addresses the significant role of the Building Bureau of the National Jewish Welfare Board in the effort to promote gender integration in the athletic spaces of the merging of Young Men’s and Young Women’s Hebrew Associations (YM-YWHAs) in the 1920s and early 1930s. This original research uses archives of the American Jewish Historical Society for the National Jewish Welfare Board (JWB) Records and focuses on the materials about the Building Bureau of the JWB. Key individuals like Louis Kraft, head of the Building Bureau and Director of Jewish Center Activities, and Emily Solis-Cohen, first Secretary of Women’s Work in the JWB played key roles in developing field reports and the need for increased athletic facilities for both sexes in various Jewish communities in the 1920s and 1930s. The paper examines why these JWB key personnel of the Building Bureau believed the built environment and technology of the new facilities needed to accommodate both sexes in shaping the cultural and athletic environs in YM-YWHAs and Jewish Community Centers (JCCs). How did building reformed athletic spaces facilitate gender integration and address the male-dominated sporting facilities in the sporting activities and physical culture programs of American Jews? The influence of gender and material culture in reforming the athletic spaces in Jewish cultural environs will be examined. Key JWB personnel like Solis-Cohen and other women from YWHAs strived to provide opportunities for the female gender in new YM-YWHAs and showed power in gender politics to gain access to sporting facilities and technology to promote the integration of YM-YWHAs. Using field reports and recommendations of the JWB Building Bureau in various communities about swimming pools, drying rooms, gymnasmiums, and other sporting technologies, writings by Solis-Cohen and others, and articles in The Jewish Center, the quarterly publication of the JWB, this research shows how gender integration in access to athletic spaces shaped gender identity in sport for Jewish women and men.

Engineered Athletics: Cold War Science, Technological Consciousness, and Sport in East Germany Mario Bianchini, Georgia Institute of Technology

East Germany believed that science and technology offered the path to communist utopia. As such, technology appeared throughout East German culture: populating stamps; emerging as the focal point of film; even seeping into play. East German sport too was inextricably bound with technology. In this paper, I explore how sport offered a tangible medium to trumpet the victory of East German technoscience. Specifically, I argue that between 1960 and 1989 the East German state treated sport as a pure science, one amenable to strict regulation, measurements, and experimentation, while treating athletes as scientific subjects ready to be improved by technology. Sports clubs were created, mediated, and maintained through central party apparatuses such as the Society for Sport and Technology. Here, sports participants were representatives of their factories and industries, not simply players in a game. Further, East Germany ran elite academies meant to scientifically produce the best athletes, replete with standardized measurements, exams, and benchmarks. Those selected could then be augmented with growth hormones and intense training to maximize potential. This augmentation fell particularly upon women, as party leaders realized that foreign gender norms that assumed the weakness of women would greatly hamper their competitive viability. Indeed, East Germany would go on to win an impressive amount of Olympic medals. However, my study of East Germany’s technological consciousness augments the oft repeated, yet simplistic, notion that Olympic medals simply meant better athletes than the West; for the East Germans, who sought the scientization of sport, it also meant better science.

Techno-Physical Feminism: Surveillance, Wearable Technology, & Shifting Risk Paradigms Renee Shelby, Georgia Institute of Technology

Wearable technology has transformed the scope and scale of bodily knowledge, placing technoscience at the center of debates over corporeal empowerment and surveillance. In recent years, “sexual armor” designed to rebuild feminine bodies in a form more capable of withstanding off unwanted sexual advances, has received global media attention as the new wave in sexual violence prevention. In contrast to physical self-defense that incorporate aspects of martial arts and boxing, inventors doubly frame anti-rape wearables as failsafe, impenetrable bodily
barriers that can dispense “social justice” given endemic sexual violence. Claims that anti-rape wearables are understood and critiqued by tracing the technical history of chastity technologies designed for male and female wearers via patent records from the 1850s through 2016. These records reveal the emergence of technophysical feminism—my term for the techno-strategy inventors believe enhances the wearer’s corporeal resilience and agency so women might better resist sexual violence. As corporeal self-defense has offered a means to challenge dominant gender ideologies, too frequently technophysical feminism re-inscribes female bodies as passive. This research illuminates shifting paradigms of gendered sexuality and physicality, and the enduring view of technology as an effective behavioral-cultural intervention. It also reshapes scholarly conversations about power and surveillance.

Chair: Jennifer Sterling, University of Iowa


Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Berkeley

Recently, questions of security — as a set of practices, power relations and socio-technical configurations — have regained attention within the STS community, leading to promising intersections with work in security studies and criminology. With this panel, we seek to contribute to the emerging dialogue by exploring the role of visual technologies and sensing practices for the production of (in)securities. Building on and extending the approach of visual securitization (cf. Hansen 2013), our aim is to engage with practices of inscribing and circulating different semantic and political meanings in visualizations of security. We invite contributions that explore how visualization technologies are co-productive (cf. Jasoff 2004) for the social construction of threats and changing modes of sense-making in security governance. Submissions might address the following (non-exhaustive) topics: • How are risks and uncertainties encoded within security-related visualizations, e.g. satellite imagery, drones, Big Data analytics for policing or heat-maps? • Which different socio-technical imaginaries are inscribed in visualizations of security? • What are the (in-)visibilities in security visualizations, e.g. when it comes to risk assessment and disaster communication and coordination? • What is the role of visualizations in the making of conflicts and state power dynamics? • How can we link theoretical and conceptual approaches from STS, security studies, and criminology to understand visualizations of security?

Participants:

Cell Site Simulators and the Visibilization of Metadata Thomas Linder, Queen's University, Kingston, Canada

Cell site simulators have been featured in the mainstream news with reports of their use by police forces in the UK, US and Canada. While academic articles have engaged with them from technological and legal perspectives, few have tried to conceptualise the modality of surveillance they enable for police forces. This article draws on work done on police use of CCTV and biometric identification technology as theoretical foils through and against which to think about the modes in which cell site simulators expand the police surveillance assemblage. Analyzing the current academic literature on cell site simulators (e.g. Israel and Parsons 2016) the article identifies five key characteristics of cell site simulator surveillance practice: the devices afford geo-specific, indiscriminate, involuntary and invisible identification and location of cell phones. The characteristics are then approached through the recent work of John Law, Vicki Singleton and Annemarie Mol to conceptualise the modes of surveillance they enact and the knowledge they potentially fabricate. The article comes to the conclusion that cell site simulators enable the extension of the police gaze into the realm of local telecommunications metadata, producing a new type of visibility in their area of operation. This combination of surveillant assemblage theory and Actor-Network Theory allows productive connections to be made with current work in Critical Data Theory on the epistemological and governmental implications of metadata. Further, drawing on the work of Andrea Briglioni on visibility in social theory, the article then suggests that to avoid claims of objective or un-intrusive metadata surveillance the concept of ‘modes of visibilisation’ to should deployed. It serves to highlight not only the heterogeneity of technological production and the power differentials inherent therein.

Sensors, Signals, Servers: Policing in the Twenty-First Century
Lauren Kilgour, Cornell University

How do network technologies impact how crime is conceptualized and policed? This paper presents results from a two-stage exploratory case study focused on a commercial technology firm in the United States (US), ShotSpotter Technology Inc. (SST). SST is a distributed aural gunshot detection system directed at decreasing gun crime through enabling law enforcement officers to more swiftly respond to gunshots by accurately identifying the location and direction of gunshots as well as the type of gun fired. Part one shares results from historical research contextualizing contemporary uses of network technology for policing. Part two describes findings from content and discourse analyses of SST’s annually publicly published “National Gunfire Index,” which claims to be the most detailed record of illegal gunfire activity in the US. I show how SST’s narration of its system as an objective technology promotes a growing form of data-driven biopolitics that heavily foregrounds attending to symptoms of crime versus systemic factors. I also consider the policy implications for the uptake and reuse of data produced by SST systems. This project traces the rapid expansion of digital government in the criminal justice sector, and considers the implications of using commercial technologies to fill government service provision infrastructure gaps. This research draws attention to how some gaps come to be filled, and others grow wider over time; and is centrally concerned with scrutinizing the present promises of digital government in the era of big data.

Smart CCTV: Combining STS with Criminology and Surveillance Studies Jens Hälterlein, University of Freiburg

In my contribution, I will address the rise of “smart CCTV” by combing insights from different theoretical approaches. Criminological concepts such as David Garland’s Culture of control (2001) the new penology (Feeley/Simon 1992) and neoliberal governmentality (O’Malley 2010) aim at a general understanding of the new rational of crime control that form the basis of situational crime prevention and thus CCTV. Surveillance studies have addressed CCTV empirically by focusing on the implementation of video surveillance in policing practices (Goold 2004) and its effects on citizen’s behavior in public spaces (Norris/Armstrong 1998). Recently, the advancements in the field of computer vision and its applications to video surveillance have raised attention within STS (Gates 2011, Neyland/Müllers 2015). Instead of seeing surveillance practices and effects as determined by technological properties or functionalities, these new technologies of visualization are understood in a mutually constitutive relationship with the social worlds in which they are embedded. Whether a technology can be seen as useful, effective or legitimate is always subject to interpretations of actors, but also the wider social context. The success (or failure) of “smart CCTV” (will) depend on the interplay of technological preconditions, practices, discourses and structural factors. Only within the socio-technical assemblage of algorithms, cameras, computer science, security
work, the security market, political discourses, the media, and the perception of these visualization technologies have become a panacea for security issues. Thus, an STS approach opens up – and demands – for the combination and integration of the theoretical and empirical insights from criminology and surveillance studies.

Chair: Nikolaus Pöchhacker, MCTS, Technical University of Munich

008. Making Medical Innovation Ethical

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Clarendon

New medical technologies often challenge and remake frameworks for evaluating the ethics of biomedical procedures. This panel, organized by the Science, Technology, and Medicine section of the Society for Medical Anthropology, seeks to deepen the conversation about what happens when new medical tools come up against existing ethical sensibilities. While many experts, patient groups, and media observers believe that medical innovation will open up human bodies to longer, better life spans and a wider variety of sensations and experiences, other constituencies worry about how new gadgets perpetuate patterns of unequal access to medical care. What political, social, and technical understandings of technological innovation underwrite such orientations, and what other responses are possible? Furthermore, to what extent is the development of such technologies the purview of elites, and to what extent do women, people with disabilities, people of color, queer and gender non-conforming people, people at the margins of the economy, and experts situated beyond established global centers of power actively intervene upon their design and use? What is at stake when bodies saved or enhanced by emerging technologies encounter established ethical norms in the laboratory, the research clinic, the maker space, the hospital, and the street? What sorts of controversies about evidence of efficacy and responsible use allow us to witness the (re)configuration of ethical frameworks for new medical technologies? We invite papers with an ethnographic grounding focused on any geographic location that explore the diverse uses, effects, and conditions of development of medical technologies.

Participants:
Innovating Reproduction: Ethics and Access to Technology and Bodies Anna Jablone, Stanford University; Sandra Soo-Jin PhD Lee

This paper investigates ethical and political dimensions of an attempt to innovate human egg-freezing technology. Grounded in an ethnographic case study of a medical technology innovation program, we follow a developing project for better access to, and new applications of, such novel reproductive technologies. We hone in on the ethics and politics articulated in the deliberations of a multidisciplinary team. Grounded in a set of normative claims about gender and reproduction - about women wanting to preserve their eggs for the future, and having an interest in their own reproductive fitness - this project initially aims to make such technology more cheaply and widely available. As the innovation team articulates their idea toward advisors and mentors, different reactions re-orient the project. These moments each involve ethical and political deliberations around what is clinically needed and for whom, what directions technology should go and why, who the stakeholders are, what new markets could be opened up, what women want or do not want, etc. We describe how the lines between widening access to technology and expanding innovators’ access to bodies, and thus markets, become blurred in the process, while predictive technologies are becoming normalized. We thus investigate the collaborations underlying the development of medical technology, entailing politics and ethics at every step of the way. We argue that medical technology developers are in a bind: as the logic of profitability underlies innovation and biomedical infrastructure building, they navigate a contradictory landscape of making what is clinically needed an economically viable enterprise.

From Chronic to Infectious: Hepatitis C and its “Cure” Lisa Lehner, Cornell University

The last five years have seen a genuine revolution in Hepatitis C-therapy: New direct-acting antiviral drugs promise to rid the human body of the C-Virus for the first time. Based on ethnographic research in Austria, I interrogate the effects of this revolution, both material and semiotic, on Hepatitis C-treatment practices: How is Hepatitis C treated now and what is it treated with, but also, what is Hepatitis C treated as by doctors, insurance companies, governments, and international agencies? Building on foundational STS-work such as Ludwik Fleck’s, I argue that Hepatitis C and its “cure” are mutually constituted and co-emergent, allowing me in turn to ask how “the cure” has been changing the very ontology of Hepatitis C. The targeted precision of “the cure” enacts Hepatitis C no longer as a chronic disease of the liver demanding life-long care, but instead as an urgent infection located only in the virus. This shift from chronic to infectious has shifted the “ethics of care,” addressing patients not as socially situated bodies but as members of an “infectious population,” a threat within the national body to be taken care of straightforward and for good. This transformative moment in Hepatitis C-treatment offers a privileged lens into the ontological politics of disease Annemarie Mol has urged us to investigate. It will allow me to examine not only how Hepatitis C is enacted, but also which enactments are sidelined and disallowed this very moment, with lasting consequences and possibly to the chagrin of patients and advocacy groups.

Economic and infrastructural barriers to technological enhancement of visually impaired people in Russia Alexandra Kurlenkova, Center of Medical Anthropology, Institute of Ethnicity and Anthropology, Russian Academy of Sciences

The last five years have seen a genuine revolution in Hepatitis C-treatment practices: How is Hepatitis C treated now and what is it treated with, but also, what is Hepatitis C treated as by doctors, insurance companies, governments, and international agencies? Building on foundational STS-work such as Ludwik Fleck’s, I argue that Hepatitis C and its “cure” are mutually constituted and co-emergent, allowing me in turn to ask how “the cure” has been changing the very ontology of Hepatitis C. The targeted precision of “the cure” enacts Hepatitis C no longer as a chronic disease of the liver demanding life-long care, but instead as an urgent infection located only in the virus. This shift from chronic to infectious has shifted the “ethics of care,” addressing patients not as socially situated bodies but as members of an “infectious population,” a threat within the national body to be taken care of straightforward and for good. This transformative moment in Hepatitis C-treatment offers a privileged lens into the ontological politics of disease Annemarie Mol has urged us to investigate. It will allow me to examine not only how Hepatitis C is enacted, but also which enactments are sidelined and disallowed this very moment, with lasting consequences and possibly to the chagrin of patients and advocacy groups.

Economic and infrastructural barriers to technological enhancement of visually impaired people in Russia

Alexandra Kurlenkova, Center of Medical Anthropology, Institute of Ethnicity and Anthropology, Russian Academy of Sciences

The loss of eye sight is one of the most serious forms of disabilities, as we live in a predominantly visual world engaged in a vast amount of visual practices (Vannini, Waskul, Gottschalk 2012, Howes 2003). The social aspect of visual disability was highlighted by the idea ofocular-centeredness (Jay 1993) of most of real-world and virtual reality practices of a modern person. The situation with visual impairments is complicated by the fact that many of them cannot be restored by means of todays’ medical knowledge and procedures. Available technologies of visual, audial or tactile enhancement of visually impaired people, such as white canes, interactive 3D glasses, braille display, screen-reading programs, web accessibility do not belong to the medical field per se. Their availability depends on individual economic possibilities, infrastructural design of physical spaces (for example, the use of interactive glasses implies that the public places are equipped with special sensing elements), as well as audial accessibility of internet pages. Moreover, to get access to these technologies one needs to a sufficient level of technological awareness and skills. In this talk, based on qualitative interviews with visually impaired people in Russia (n=35), I would like to present several cases of technologies designed to help visually impaired people to get access to public places and internet resources. I want to elicit existent economic and infrastructural barriers, such as city planning, affordability, and bureaucracy, that put obstacles in the way of creating a more inclusive environment for the blind.

An ethics of enchantment? Analysing the research ethics apparatus of gene therapy Courtney Addison, University of Copenhagen

This talk analyses the research ethics apparatus around gene therapy through the lens of enchantment, drawing on a larger ethnographic project on the social shaping of gene therapy in the United Kingdom. Enchantment, as theorised by Alfred Gell, arises when one encounters art or technology that is human-made, but so complex or beautiful that its human origins are hard to comprehend. Before Gell, Max Weber wrote of the “disenchantment of the world” as part of a broader shift toward rationalisation. I argue that the research ethics apparatus – comprised as it is of informed consent documents, protocols, and permissions – works off the premise of necessary disenchantment. I locate this particularly in the focus of research ethics on the informed subject and on documentation; here
explication comes to signify ethics and any kind of enchantment with experimental medicine is actively worked against. I problematize this emphasis on disenchantment by analysing a scene from my fieldwork in a London paediatric hospital, in which a young patient became scared and upset upon hearing the risks of her gene therapy procedure during a routine consent process. By way of closing and provocation, I ask whether there might be medical circumstances in which enchantment is in fact a more ethical course of action.

Remaking the Ethics and Epistemology of Alternative Biomedicine: Fetal and Stem Cell Therapies in (Post)socialist China
Priscilla Song, Washington University in St. Louis

This paper examines how Chinese medical entrepreneurs promoting stem and fetal cell therapies challenge and remake frameworks for evaluating the ethics and efficacy of biomedical innovations. Drawing on a decade of multi-sited ethnographic fieldwork conducted in transnational hospital wards, laboratories, and online patient discussion forums, I document an emergent ethics and epistemology of “alternative biomedicine” in (post)socialist China. The transition from laboratory bench to hospital bed is happening at an accelerated pace in China, with increasing numbers of new treatments being tested on and marketed to patients. The proliferation of experimental stem and fetal cell clinics capitalizes on the biological potentiality to sell imagined futures in which damaged tissue may be regenerated, lost function may be regained, and previously irreparable organs may even heal themselves. As these clinical experiments come up against existing ethical sensibilities, they reconfigure qualms about the moral status of the embryo, the politics of abortion under state-mandated birth planning, the hegemonic discourse of randomized controlled trials, and concerns over burgeoning health inequalities in an increasingly privatized health care system. The new forms of knowledge produced by Chinese stem and fetal cell entrepreneurs and their patients ultimately challenge what counts as expertise and data in biomedical innovation, illuminating the challenges of regulating experimental medical treatment in a globalized era, the ways in which information and communication technologies (ICT) are transforming patient activism, and the unintended consequences of postsocialist healthcare reforms.

Chair:
Elena Sokolova, Institute of Ethnology and Anthropology, Russian Academy of Sciences

009. Postphenomenological Research 1: Scientific Perception

Traditional (Closed) Panel
Sheraton Boston: Floor 3 - Dalton
11:00 to 12:30 pm

This panel explores the perceptual dimensions of scientific research from a postphenomenological perspective. How do we think of science differently when we consider its tactic, embodied, cultural, and instrumentation-laden dimensions? These papers together investigate the kind of knowledge created through scientific processes, bringing together postphenomenological insights with those from actor-network theory, and experimental medicine is actively worked against. I problematize this emphasis on disenchantment by analysing a scene from my fieldwork in a London paediatric hospital, in which a young patient became scared and upset upon hearing the risks of her gene therapy procedure during a routine consent process. By way of closing and provocation, I ask whether there might be medical circumstances in which enchantment is in fact a more ethical course of action.

Do Instruments Really Produce “Easy Knowledge”? Stanley C Kranc, University of South Florida

In 1976, in my Listening and Voice, I pointed out that humans, prenatally, experienced language (and music) by feeling and hearing the rhythms of their mothers’ speech and singing. The sciences are now beginning to do a lot more serious work on animal acoustics, finally in my terms, adding sound to our world. Science, 19 August 2016 has an article, “Prenatal acoustic communication programs offset for high post hatching temperatures in a songbird.” The bird is a Zebra Finch, already well studied for the ways it teaches its young to sing. The abstract claims, “In many species, embryos can perceive and learn external sounds. Yet the possibility that the parents may use these embryonic capacities to alter their offspring’s developmental trajectories has not been considered. The article goes on to show that Zebra finch embryos can hear inside the egg and that the parent can acoustically warn-program for high post hatching heat. Put in anthropomorphic and contemporary terms, mother finches are aware of the rising temperatures of our era, and acoustically warn-program chick development to prepare for what we would call “global warming.” This capacity obviously parallels the human fetal perceptual capacity to ‘hear’ language and music prenatally. I shall explore this bodily-perceptual animal capacity and relate it to current arguments concerning perception and cognitivism, drawing from Merleau-Ponty and postphenomenology.

On the Difference Between Technical and Technological Mediation: Science-in-the-Making and Science-as-it-has-been-made Bas de Boer, University of Twente (the Netherlands)

How do technologies allow for the coming into being of new phenomena in scientific practice? In this paper, I will answer this question through a discussion about the relation between the work of Bruno Latour and postphenomenology. Firstly, I will show how Latour’s refusal to a priori attribute a specific form of rationality is grounded in his ‘critique’ of Enlightenment critique. Second, I will show how this refusal opens the possibility to understand the variety of ways in which technologies function in scientific practice. Thirdly, I will critically discuss Latour’s conceptualization of technologies as inscription devices by pointing out the limits of his deconstructionist approach. I will argue that while this approach claims to study science-in-the-making, in fact, it is studying science-as-it-have-been-made. When this is made clear, I will conceptualize the differences between Bruno Latour and postphenomenology in terms of the difference between (a) technique and technology, and (b) technical and technological mediation. I will argue that if we treat technologies as things in themselves instead of conceptualizing them as techniques helping to realize something else, we can start to understand the various mediating effects of technologies in scientific practice. Based on a postphenomenological analysis of a case study in the cognitive neuroscience, I will show that technologies are not mere inscription devices, but (a) shape interpretational frameworks, (b) create new objects of experience, and (c) embody specific principles of reasoning.

Do Instruments Really Produce “Easy Knowledge”? Stanley C Kranc, University of South Florida

Various accounts of the epistemology of perception present arguments modeled on physical instantiation. For instance, Armstrong’s “thermometer model” of non-inferential knowledge forms an analogy with instrumental perception to avoid a problem of infinite regress. The choice of instruments as examples in such discussions is noteworthy, as consequential results call into question information routinely gathered in this way. A much-discussed case in point concerns Roxanne, whose car has a reliable fuel gauge, a fact unknown to her. Each time she reads the instrument she forms a belief as to the contents of the fuel tank and so—as the process reliability argument goes—after some number of readings she is justified in believing that the gauge is reliable. This reasoning, deemed epistemically circular, admits knowledge acquired too easily (by “bootstrapping”) and has been cited as a reason to reject process
Transdisciplinary Research: Transforming Sensibilities and/or Making Usable Knowledge?

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Exeter

Over the last 40 years, the traditional model of science conducted by individual researchers has evolved into various models of ‘big science’, as illustrated by the increasing number of transdisciplinary research networks at local, regional and international scales in the global environmental change research community. Transdisciplinary research networks such as Future Earth are deemed necessary to address complex problems not amenable to individual research grants. Our session moves beyond the epistemological and methodological research on the nuts and bolts of science, including its technologies. Yet it is the way Bachelard treats this question that gives him contemporary relevance. For although he begins with strictly epistemological reform, his critique of the ‘technoscience’ phenomenon of science leads him not only turn his focus toward the power and influence of technologies and experimental procedures in science; it prompts him to consider—unusually serious for the time—the technologized character of human practices beyond science. Like Heidegger, he argues that whether one’s concerns are epistemological, ontological, or praxiological, science and technology must be understood together as a single phenomenon (hence, “technoscientifically”); but unlike Heidegger, Bachelard has much to say about technoscience as a single, overarching cultural phenomenon whose role is not at all limited to acquiring knowledge, or even to acquiring knowledge and using it.

To illustrate how Bachelard approaches such issues, this paper closes with a shamefully ahistorical consideration of what he might have thought about cloud computing.

Chair: Peter-Paul Verbeek, University of Twente
Community-engaged research approaches—of which there are many flavours—are increasingly used in the study of environmental contaminants and their impacts on human health and well-being, reflecting a desire to improve the relevance, quality, utility, and emancipatory possibilities of inquiry for communities affected by contaminants. The US National Institute of Environmental Health Sciences Superfund Research Program (SRP) is one example of this shift: since 2011 the SRP, which funds multidisciplinary research centres that investigate methods to detect, assess, and prevent health effects from hazardous substances and contaminated sites, has required that grantees engage communities impacted by hazardous substances through a dedicated core. In this work, I examine the diverse ways in which this mandate for “community engagement” has been realized in research practices, under the different social and material contexts of the 18 currently funded centers and associated hazardous sites. Drawing from a detailed analysis of program and center documents, and semi-structured interviews with center personnel and community partners, I pay particular attention to how “impacted communities” come to be defined, and by whom. In doing so, I explore how “impacts” and “community” are coproduced, and how engagement and research activities can both empower and enact community in different contexts. Through this focus on how engagement is practiced within a single funding program, I hope to better understand how top-down funding requirements and local contexts interact to shape research practice, and implications for research program design.

Engaging Stakeholders in Transdisciplinary Research:
Recalcitrant Subjects and Performative Response-abilities
Nicol L Klenk, University of Toronto; Katie Meehan, University of Oregon

Public engagement in science is increasingly seen as a positive social good, with the potential to democratize knowledge production and improve the ability of “stakeholders” to translate knowledge into action. While performative perspectives in STS highlight the radical nature of entanglements as the defining conditions of knowledge and practice, this paper explores the stubborn existence of stakeholders as subjects, whose potential recalcitrance obligates us to respond to their becoming in heterogeneous ways. The paper asks: how do researchers and stakeholders make sense of each other in transdisciplinary research settings, and in what ways does this “sensitizing” demand response-abilities towards stakeholders in their various modes of mattering? We examine the recalcitrant roles of stakeholders in transdisciplinary research, drawing on a study of a transdisciplinary network that spans the Americas, the Fulbright NEXUS programme (2010-2016). Building on recent scholarship on the logics of interdisciplinarity, public participation in science, and social imaginaries of public engagement, we seek to understand how roles and response-abilities between researchers and stakeholders are co-constituted, and we pay particular attention to the geopolitical and ethical implications of a performative understanding of transdisciplinarity.

Chair:
Nicol L Klenk, University of Toronto

011. The Tools of the Trade / The Tools for the Job
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Fairfax

Participants:
Technology in the Kitchen: Chicken or Egg? Jonathan LeRoy Biderman
Chef Ferrán Adrià once said, “90 per cent of what happens at elbulli is done with a knife. To cut is to cook; a knife is technology.” But elbulli was the world-renowned temple of molecular gastronomy, and Adrià himself is inseparably identified with using laboratory science and technological wizardry in the kitchen to play with the sensory and intellectual experience and definition of food—even to the point of being satirized on The Simpsons TV show. Molecular gastronomy and modernist cooking seem to represent an enormous move toward technology in the kitchen (more broadly, technology already is deeply embedded, if largely hidden, within the entire food system from source to waste.) But what has given rise to this shift in culinary attitude and practice? Did the advent of new technology catalyze greater creativity in the kitchen? Or did the evolution of cooking styles, particularly haute cuisine, cause chefs to seek out or develop new ways to cook? The diversity and complexity of food and cooking enable consideration of the full spectrum from technological determinism to sociocultural definition of technology in the kitchen, as well as the feedback loop between these two concepts. Also, Adrià’s statement invites us to explore what we consider “impacted communities” to be and how we arrive at such definitions. Further, the development and evolution of molecular gastronomy provides an additional perspective on the ideology of technological solutionism. This paper builds on a combination of first-hand ethnography and the professional experience of the author.

Aiming Ahead: A Case of Instrument Rejection and Adoption in a Rapidly Changing Work Environment
Zara Mirmalek, Harvard University; Alexander Schilke, NASA Ames Research Center; Darlene S. S. Lim, BAER Institute, NASA Ames Research Center

NASA’s BASALT (Biologic Analog Science Associated with Lava Terrains) team of scientists is developing an interplanetary work system to support real-time science and exploration decision-making among workgroups on Mars and Earth. In June and November 2016, the team conducted two 14-day simulations of remote science using two terrestrial volcanic terrains (Idaho and Hawai’i) as Mars analog environments while applying constraints in communication (audio and video) bandwidth and interplanetary time differences of 5 to 15 minutes. In addition to generating geologic and biologic data for scientific knowledge about the analog sites, several spectroscopic field instruments were evaluated. A change to the suite of field geology instruments, from the first to the second deployment, yielded an opportunity to examine social aspects of workgroup-technology relationships. The authors noticed an unexpected growing rejection of one of the new additions, a x-ray fluorescence spectrometer (XRF). Towards exploring which, if any, changes could give the XRF more opportunity to prove its usefulness for the work of remote science, the authors used ethnographic data to identify differences in the team’s treatment of instruments and discussions utilizing instrument data. It was a move informed by the understanding that the popularity of a particular tool is not a simple matter of self-evident merit. Several small actions were carried out each day. “Aiming Ahead” presents the XRF’s trajectory from “growing rejection” to becoming ranked one of the most useful science instruments during the second simulated exploration mission and provides analysis used for informing interventions made along the way.

Cyberinfrastructure tools and the transformation of Early Researcher Careers
Kerk Fong Kee, Chapman University; Jeremy Hunsinger, Wilfrid Laurier University

As an exploratory paper, we seek to describe and theorize the relationships between cyberinfrastructure (CI) tools and the careers of early career researchers. Technological tools are fundamental to the conduct of science and engineering research. These tools move across scientific domains as they are adopted by individuals and organizations. As with those technologies, an emerging generation of CI tools are migrating through scientific organizations, individuals and groups learn about them, use them, develop them, and disseminate knowledge about them to other groups. The processes connected to these tools are bringing about changes in the research landscape of science and engineering. The purpose of this paper is to interrogate these changes in relation to those tools as they travel from groups to groups, and manifest at the individual and organizational levels. Atkins et al. (2003) argue that CI will eventually spread and revolutionize science and engineering in the US. Arguably, this is true for the

Incertitude of the Science in case of the Highest Luminosity

have altered street-level bureaucrats’ discretionary practices; 3) data divide that limits and biases the insights those tools provide; even basic data literacy competency are concentrated at the top, a fact that yields five (5) insights: 1) public agency staff acquainted with best practices for adult data literacy curricula and propose data literacy instruction offers learners the potential for greater autonomy on the job; and, 4) a composite “best practices” approach to teaching adult professionals data literacy knowledge and skills is developed and described. The paper concludes by identifying data literacy as a precursor for 21st century citizen research, science and journalism and public sector workers as a key population due to their access, expertise, influence and societal role.

Chair: Andi Dixon

012. Identity Questions: The Digital, Genetic and Microbial Human

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Gardner

Participants:

Digital Phenotype: Human Embodiment or Transhuman Imagery? Anne Kovalainen, University of Turku, Turku School of Economics; Seppo Poutanen, University of Turku, Turku School of Economics

The crucial issue is the digitalization of human health and disease data which offers the ways to combine clinical information with non-traditional phenotypes analyzed in a manner that changes the insights into disease diagnosis, prevention, or treatment. Human digital phenotyping and associated analytics will enable new wellness and disease related diagnostics as well as new businesses to be developed. Indeed, human phenotyping is considered as the next great biomedical frontier, analogous to the Human Genome Project in its profound implications for medicine, and in the scale of the effort and resources required (e.g. Ausiello and Shaw 2014). The prospects of human phenotyping place several pertinent questions for ethics, law, science and technology studies and philosophy of science. These, combined with prospects for business opportunities and biomedical enterprises widen the question to biocapital governance, power and ethics (e.g. Fujimura and Rajagopalan 2011, Rajan 2006). Digitalization has made and is currently making vast transformations in the ways we understand and analyse the objects of science, human beings included (e.g. Wolfe 2010; Lock 2008). The paper builds on and develops humanities’ and social sciences’ intersection into a medical research project where digitalization and digital data combination are key ingredients. The paper analyses the ways digital data and digitalization of human bodies and diseases translate into our understandings of what human is and how we can re-imagine, repair and reconstruct it. More specifically, the project will focus on the specific ways researchers understand and translate this knowledge.

Microbial Fingerprint: Towards a New Definition of Identity

FRANCOIS-JOSEPH LAPONTE, Universite de Montreal

We inhabit the microbial world. Every single orifice of our bodies is populated by millions of different microbes. We breathe microbes, swallow microbes, digest microbes, urinate and defeate microbes. We are part of a complex network of bacteria, viruses, fungi and other microorganisms living on us, around us, and inside of us. Realizing that every single individual has a distinct microbial fingerprint has farfetched implications about the boundaries of our own identity. Accepting that most of the cells of our bodies are not even human cells challenges the definition of selfhood. New concepts must extend beyond the traditional limitations of our own flesh and blood to include our commensal microbial communities. Besides its important contributions to science, microbiome research raises a fundamental question that strikes close to home: are we still a ‘human being’, and if not, what are we?

Trevor Goward, Lichenologist

Derek Woods, Rice University

The Canadian scientist Trevor Goward is a self-trained lichen expert living near British Columbia’s Wells Gray Park. His life and work as a widely and professionally published lichenologist...
Administrating Science Research and Policy

Chair: Derek Woods, Rice University

013. Administrating Science Research and Policy
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Jefferson

Participants:
Administration as Infrastructure: “Enabling Systems” in Global Health
Johanna Crane, University of Washington Bothell

Global health science is commonly framed as a heroic activity devoted to saving lives and producing knowledge. Absent from this imaginary are the “boring” administrative practices and infrastructures that make global health collaborations possible (Lampland and Star 2009). In this paper, I argue for the importance of underwriting administration as a form of infrastructure, using the example of global health “enabling systems” as a case study. Global health work necessitates a great deal of unglamorous administrative coordination across multiple institutional bureaucracies, legal systems, time zones, and currencies. This reality, combined with the skyrocketing popularity of global health within the U.S. university, has given rise to the concept of global health “enabling systems” as a new synthesis of evolutionary theory.

Lampland and Star (2009) propose that an administrative perspective can be a case study in ecosophical praxis and multidisciplinary science. His rural habitat is at once an enormous archive of lichen and fungal species and a library of literature and philosophy which Canadian poets such as Don McKay, Jan Zwicky, and Robert Bringhurst have used as a creative space. Working in the genre of biography, my paper draws on interviews and experience working for Goward in order to describe the (apparently singular) research community he built along with his partner Curtis Bjork. Why biography? Far from a theoretical step backwards that would fetishize the author-scientist, or a critique of recent developments in the “nonhuman turn,” I propose a posthuman biography drawing on German historian of science Hans-Jörg Rheinberger’s theory of experimental systems and Felix Guattari’s approach to ecological subject formation. If the paper’s first contribution is a biographical study of anti-institutional science, the second concerns the lichens themselves and the theoretical implications of this form of life. In short, this second contribution is a theoretical explanation of why biologists in the circle of Scott Gilbert and Donna Haraway have taken to citationally recycling the phrase “we are all lichens.” The biography of Goward thus situates broader questions about the role of symbiosis in what Haraway calls the “new new synthesis” of evolutionary theory.

I raise questions about how enabling systems are used to manage the transnational entanglement that global health work necessitates, and ask what kinds of “infrastructural violence” they might engender (Appel 2012).

The Late Incorporation of Risk Governance into Nanotechnology Policy in Brazil
Josemari Poerschke Quevedo, UFPR - Federal University of Paraná; Noela Invernizzi, Professor in UFPR

Nanotechnology entered the scientific agenda of industrialized countries since the beginning of 2000 and was funded with large public and private budgets. In the wake of science-society controversies around technological risks—e.g. the mad cow disease and genetically modified food, among others—science, technology and innovation (STI) policies to spur nanotechnology incorporated new strategies on risk governance along the development of this emerging technology. In a trajectory of stimulus to nanotechnology lasting more than 15 years (2000-2015), the governance of risk in Brazil was left in second plan. Only in 2011 the Ministry of STI launched a more systematic action, with the implementation of 6 research networks on nanotechnology and 2 research networks on nano-instrumentation. In 2012, the country joined the consortium NANoREG, with a view to enlarge capabilities in risk and regulatory research. Some regulatory agencies started training their personnel on nanotechnology. However, at the same time, two bills were presented in Congress, but both were stagnant. Although late, an incipient and still fragile actor network is forming around the governance of nanotechnology risks. Based on contented analysis of official documents, registries of public hearings, news and interviews, this presentation aims to: a) identify, in the actions of nanotechnology policy, the risk governance approach under construction; and b) examine the perspectives of Brazilian scientists regarding the legitimation of the research on nanotechnology risks. The importance for the STS field is to understand how the nanotechnology perspectives about risk are managed as a lack of civic participation in the governance.

Nanotechnology Policy in Brazil: Rationale, Governance and Challenges
Noela Invernizzi, Universidade Federal do Paraná; Guillermo Fodadori, Universidad Autonoma de Zacatecas; Josemari Poerschke Quevedo, UFPR - Federal University of Paraná

Brazil started formulating its nanotechnology policy in 2000, launching a national program in 2004. The area was declared strategic, and conceived as a motor to achieve greater economic competitiveness. Considerable, although unstable, investments were made throughout 15 years, enlarging the country’s human and material research capabilities and stimulating a group of companies to adopt the novel technology. In this presentation we examine the design, implementation, and challenges of Brazilian nanotechnology policy. First, we explore how nanotechnology agenda was set, highlighting international influences and the prominent role played by the local community of nonscientists. Then, we examine the main traits of the formulation and implementation of the policy, focusing on four dimensions: capacity building, promotion of innovation, issues of risks and regulation and social implications matters. We claim that the policy was conceived within a narrow governance approach but, along the implementation process, events occurred in the national and international contexts forced some advances, particularly regarding the issues of risks and regulation. Finally, we problematize the strategic status given to nanotechnology policy, demonstrating the gap between explicit and implicit policy. Regarding the methodological approach, we rely on public policy analysis and science governance literature. The information sources are mostly documentary, complemented by direct observation of several meetings organized by the Ministry of Science, Technology and Innovation and interviews with policy makers.

Interoperating Imaginaries in a Proteogenomics Data Science
Proposal Andrew Staver Hoffman, Human Centered Design & Engineering, University of Washington

Interoperability is not a monolithic phenomenon. Although it can manifest as a vector of collective scientific exploration—data repositories national funding agenda, with material implications vis-à-vis prioritizing particular sociotechnical constellations of interoperability, rendering some things doable (Fujimura 1987) and others less so.

ICT Demands Conceptual Restructuring of Science Yuko Murakami, Tohoku University

Can AI do science? Recently threatening claims are observed that intellectual workers (researchers, legal, medical and other jobs to think and judge) will be substituted by AI, as industrial revolutions (powered machines, and digitalization) have caused substitutions of workforce from human to machine, including intellectual workers such as attorneys and scientists. Watson, in fact, has been introduced to facilitate judgement. This paper will discourage such hasty claims, however, since activities and behaviors of scientists should be more carefully analyzed before implementation and realization of such “machine scientists.” Scientific activities should be decomposed into conceptual components, which in turn to be reorganized and integrated without humanly restrictions before machines substitute human scientists. Nevertheless, such decomposition requires modelling of scientific activities themselves, which are not yet possible for machines. The argument will include comparison to on-going trials of ICT device into household appliances and emphasis of conceptual analysis is needed before any proposal of policies around AI.

Chair: Yuko Murakami, Tohoku University

014. Promissory Technologies, Disciplinary Boundaries, and the Reconfiguration of Expertise: Cancer in the 21st century

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Kent

This closed session brings together research on cancer and oncology in the 21st century. Focusing on new clinical and scientific practices and understandings, we will consider how the reworked understandings of the processes of mutation and categories of cancer are changing experiences and approaches to cancer in the laboratory, the clinic and community. The ‘promissory knowledges’ of precision medicine, biomarker monitoring and new omics and immunological therapies raise important questions for STS and sociology, not least the question of who these developments will benefit and which groups/knowledges are excluded or marginalised in the process. Linking to recent work in STS, the papers in this closed session are situated in one or more of three broad themes. The first considers the ‘political economy of hope’, and in particular the high and low expectations surrounding new cancer therapies, techniques and ways and temporalities of screening. The second theme considers the way disciplines and organisations within and around oncology and cancer services are changing in relation to new approaches and understandings of cancer, including regulatory challenges and changes which may have considerable societal and cost implications. This theme also has explicit links with sociologically oriented histories of the discipline of oncology, and we invite papers that make such links across time and space. The final theme looks at the ways medical and biological expertise and the role of patient advocates and patients are being reconfigured in this context, linking to key debates on expertise in STS and medical sociology.

Participants:

Molecular Tumor Boards as collective expertise: Bio clinical decision-making in cancer genomics Pascale Bouret, AIX-MARSEILLE UNIVERSITE / UMR SESSTIM; Alberto Cambroso, McGill University

Oncologists presently consider that the most severe bottleneck preventing the realization of personalized medicine lies in the uncertainties surrounding the interpretation of the clinical significance of genomic alterations. Molecular tumor boards (MTBs) are a way of coping with this issue. Attended by clinicians, bio-pathologists, molecular biologists, biostatisticians, and bioinformatics specialists, MTBs provide a bio-clinical platform to discuss the results of the tumor profiling and make therapeutic recommendations on that basis. They link genomic platforms to clinical practices predicated on ‘actionable’ connections between drugs and mutations. Their activities rely on a heterogeneous set of evidential resources—databases, clinical trial results, previous clinical experience, basic knowledge about mutations and pathways—as related to the clinical trajectory of individual patients. MTBs co-produce data and their interpretation: ‘relevant data’ act both as the input for their interpretative activities and as the outcome of those activities. MTBs share a common purpose of providing data interpretation but the means to reaching that goal differ, from the actual composition of MTBs to the extent to which molecular results are questioned, the variable resort to prioritization algorithms, and pragmatic considerations such as access to specific drugs. Based on the comparative analysis of MTB activities in North America and Europe, the paper examines the collective and temporal dimensions of the new kind of expertise deployed within/by MTBs, their ‘evidential equipment’, the balancing act between different resources, and the essential tension between the mechanical and experimental elements at the core of their activities.

Metastatic breast cancer and the hope for chronicization Cinzia Greco, University of Manchester

Metastatic breast cancer (MBC), the terminal stage of breast cancer, has for a long time been excluded from the optimistic representations describing breast cancer as a curable condition. However, new treatments have changed the image of MBC. Innovations such as monoclonal antibodies and hormonal treatments have improved median survival times, although with differences depending on the cancer subtype. New political economies of hope are thus shaping this stage of the disease, which is increasingly being presented as a chronic condition. In this presentation, using data deriving from an ongoing project on the history of innovations in the treatment of MBC in the United Kingdom, I aim to explore the reconfiguration of and the tension surrounding MBC as a chronic condition. Reconfiguring MBC as chronic implies promises not only of longer survival, but also of specific experiences of the condition, captured by the concept of chronicity. Associations of MBC patients are now appearing on the scene, thanks also to longer survival times, giving voice to the experience of the condition, and in many cases they reject the chronicity label as inadequate to describe the condition. My objective in this presentation is to analyse how the malicable concept of chronicity both allows and constrains hope to be built around the future of the disease and brings expectations about the present of the condition that often do not match the actual
experience of MBC.
The medicalisation of advanced cancer in the 21st century: Searching for life extension in incurable disease Shan Mohammed, University of Toronto; Elizabeth Peter, University of Toronto; Denise Gastaldulo, University of Toronto; Doris Howell, University of Toronto.
Using the concept of medicalisation and poststructuralism as a framework, we explore the current clinical state of oncological medicine and examine the ways that 21st century biomedical technologies reconstitute how people with cancer understand and act on health information, medical expertise, and treatment choices. Through an analysis of multiple case studies collected within a comprehensive cancer centre in Ontario, Canada, we develop an understanding of how people with advanced cancer and their healthcare providers enacted the process of medicalisation through engaging in the search for cancer treatment, despite the incurability of the disease. The seven cases included 20 interviews with patients, family, physicians, and nurses, the analysis of 30 documents, and 5 hours of field observation. We propose that searching for life-extension intensifies the medicalisation of the dying self as an active, “expert”, and entrepreneurial agent with the capacity to generate a cure. This search moved beyond locating biomedical treatment and encroached into defining a particular way of approaching everyday life. This new dimension of medicalisation occurs within the array of multiple treatment possibilities available for some patients in high-income countries like Canada. Located both within and outside of mainstream healthcare, these possibilities include the lay utilisation of medical-scientific knowledge, the articulation of lay expertise, patients’ resistance to professional authority, and the internalisation of medicalised principles as personal ethos. We also consider how people with advanced cancer experience a pervasive sense of disconnect between the curative imagination of oncological medicine in North America and the harsh prognostic “realities” of their disease.

From Big C to little c’s: Subtypes of cancer and their implications in the clinic Anne Kerr, University Of Leeds; Tineke Broer, University Of Edinburgh; Sarah Cunningham-Burley, University Of Edinburgh
Precision medicine promises to transform the ways in which cancer is diagnosed and treated, according to its genomic particularities. A range of new subtypes of cancer, biomarker tests and biological therapies are now developing. In this paper we explore how these subtypes, tests and therapies are understood and approached by cancer practitioners and patients, focusing on their implications for how cancer care is delivered and experienced. Drawing on documentary analysis, interviews and observations with cancer service providers, users and relatives, we explore what happens when trials, tests and treatments are only available to particular subpopulations of patients and the practices of care in which this involves practitioners, patients and their families. We also consider how practitioners, patients and relatives navigate the promises and possibilities of these new approaches more generally, through collective reflection and discussion about their social and ethical implications. In focusing on a variety of ways in which these categories and technologies are performed and navigated we use STS approaches to explore an array of sense-making in practice, uncovering some of the hidden work of cancer care and broadening our understanding of innovation of health technologies.

Chairs: Tineke Broer, University of Edinburgh
Anne Kerr, University Of Leeds
Sarah Cunningham-Burley, University Of Edinburgh
Discussant: Ilana Lowy, Cnrs-Cermes

015. Student Section of 4S (6S) Business Meeting w/Kim Fortun

Business Meeting
12:30 to 2:00 pm
Sheraton Boston: Floor 3 - Beacon D

016. STHV Editorial Board Meeting
Business Meeting
12:30 to 2:00 pm
Sheraton Boston: Floor 3 - Hampton

017. Anticipating and Narrating Disaster
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon A

Participants:
The Social Structure of Reputational Damage Caused by Risk-related Event in Japan Nobuko Ueno, Chiba Institute of Technology
In Japan, the economic damage caused by risk-related event is called “Fuhyo-Higai” which is directly translated to the reputational damage. The companies irrelevant to the risk-related event have suffered the reputational and economic damage when the nuclear power plant accident and the food safety problems such as BSE happened. Some companies sued the direct risk-related organization for damages. “Fuhyo-Higai” has become the social problem in Japan. This study examine the social structure of “Fuhyo-Higai” in Japan by review of the risk-related event in Japan. Such phenomenon was mentioned as the social amplification of risk in Western society (Kasperson et al. 1988). However the phenomenon of “Fuhyo-Higai” in Japan seems to be a little different from that of social amplification of risk in Western society. The damage caused by others has been emphasized very much in Japan. To specify the structure of “Fuhyo-Higai” in Japan, this study analyzed the framing of the stakeholders related to the risk-related event in case of food safety problems. As the result, it became apparent that there was the mass media in the center of the social structure of “Fuhyo-Higai”. Further it became also apparent that the lack of the robust scientific evidence causes the reputational damage more and more and on the other hand the trust restore the damage. Such research of the reputational damage in Japan is very few in the STS literature. The findings of this study could be contributed to the STS literature.

Before Landfall: Anticipatory Sentiments in Media Coverage of Hurricanes from 1980 to 2012 Ly Dinh, University Of Illinois-Urbana-Champaign
Media coverage on disaster relief and emergency preparedness has been an important research topic for scholars in a variety of disciplines, ranging from mass communication to information science. However, most studies have approached on studying media coverage and agenda-setting from qualitative approaches such as content analysis, framing analysis, with a relatively small sample of media content. We propose an opinion mining and sentiment analytic approach with a corpus of 31,106 newspaper articles from 128 different newspaper outlets, all of which are local and national newspapers in the United States. In this study, our goal is to understand the lexical and syntactical factors associated with media coverage of hurricanes from 1980 to 2012 and examine whether media coverage on hurricanes’ potential damages and dangers is consistent with the hurricanes’ anticipated intensity scale determined by the National Hurricane Center. From our first two rounds of human evaluative coding after lexical expansion, we derived five main categories that we hypothesize to be present in newspaper articles anticipating a hurricane: (1) Risk, (2) Fear, (3) Preparedness Action, (4) Uncertainty/Ambiguity, (5) Gender-related terms. Our research questions, then, gear towards the impact of how gender of a hurricane name (i.e. Sandy versus Bret) influences the discussion of preparedness in the, especially in anticipation of a hurricane. Our main contribution to the field of STS is on the relationship between hurricane scientists and the mass media before the disaster occurs, and specifically on the extent to which experts
are involved in the media’s discourse on hurricane’s anticipated severity, as well as plans for preparedness in the wake of the disaster.

Framing a Wildlife Disaster Vanessa Svihla, University of New Mexico

White Nose Syndrome (WNS), the worst wildlife disease outbreak in North America, has already killed over 6 million bats since its introduction in 2006. In its slow but certain march across North America, scientists believed they had time to prevent further spread or to find a successful cure. On March 31st, a case of WNS was confirmed in a bat endemic to Washington State, the first confirmed case west of the Rockies. This finding led to inevitable despair for many scientists; many western bat species are crevice dwelling, making them functionally impossible to locate, assuming a treatment plan is found. This paper details the experiences of urgency, hope, incapacitation, and new modes of working that extend from the Washington state case as a triggering event. I interviewed scientists around the US working on WNS, focusing on their experience of the WNS problem broadly and on the Washington state case specifically. While very few expressed any sense of optimism, I found a range of new modes present in their responses. Some have given up hope of “saving the bats” yet find promise in the ability to prevent future wildlife disasters based on lessons learned. A few argue for a “new normal,” noting the potential for some survivor bats to slowly repopulate, albeit at levels far below pre-WNS exposure. Others cling to a desire to act, using any means possible. From this, a range of novel solutions are emerging, but these are often quickly eliminated, often because of concerns over feasibility and complexity. In the paper, I present analysis of how scientists’ framing has evolved in response to changing information, interdisciplinary perspectives on WNS and bat habitat, and changing conditions.

Basic Research: The Source of Hidden Disasters Yidong LIU, STS Center of the Institute for the History of Natural Sciences, Chinese Academy of Sciences.

Abstract: Through several case studies, this paper analyzes the ideology (e.g., no-forbidden zone for scientific exploration) behind basic research of modern science, and its institutional settings such as scientific priority, science organization and reward system from the perspective of sociology of science and SSK. Research shows that human beings cannot prevent the emergence or breakthrough of hidden disasters. With the current concept and system of making discoveries and achieving breakthroughs, scientists could always get greater benefits than the costs they should pay. Although they may terminate their researches for the sake of potential risk, the society can never benefit from the meaningless sacrifice, because other people may continue the research and win the priority. Thus, it is wise not to stop the research. Unpredictability, priority to short-sighted benefits, competitive pressure, externalities, lack of unified laws and rules, asymmetry between awards and penalties, all these factors make it impossible to prohibit the emergence of scientific and technological accomplishments. The chain-reaction relation and effect means that each possible application of scientific and technological achievement can be tried to actualize. It is hence impossible to comprehensively weigh the advantages and disadvantages of the growth of scientific and technological knowledge, to decide whether the advantages outweigh the disadvantages so that the growth should be continued, or vice versa. And the conclusion is, as an arrangement and management of the sociotechnical system, basic research is the source of hidden disasters of modern society. Furthermore, when human-being entered Internet age, basic research is more dispersed and difficult to monitor, also because of it is more difficult to predict which makes it impossible to manage the risk. This study reveals the inherent defects of the mainstream scientific view and the scientific system, and contributes to the risk governance of science and technology of STS. Profile of the Author: Professor Yidong LIU is the Director of STS Center of the Institute for the History of Natural Sciences, Chinese Academy of Sciences.

018. Facts, Artifacts, and the Politics of Scientists’ Participation in Korea

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon B

Over the last 50 years, the development of science and technology in Korea has been led by the government, and the research, as well as the institutions, of scientists and engineers have been under the strong governmental control. For example, the Korean Federation of Scientists and Engineers and the Korean Academy of Science and Technology are funded annually by the government, and it is not easy for these institutions to give opinions against the government. In this context, discussions over the social participation and responsibility of scientists and engineers have been made by STS scholars, not by scientists and engineers. Recently, however, Korean scientists and engineers have begun to engage in social and political issues in a variety of ways. Young scientists and engineers, who are critical of the fact that older generations of scientists and engineers were reluctant to participate in important social issues such as the Cheonan warship incident and the man-made disease protest, created a new organization by utilizing SNSs, and practiced active participation in social and political issues. This session will analyze these attempts using STS’s theoretical framework of the co-construction of new scientific facts, technical artifacts, and networks of scientists and engineers that highlight the social responsibility and political participation of scientific experts. Participants:

How to Count 1 Million Candle Lights? The Politics of Counting and the Participation of Physicists in Korea Sungsook Hong, Seoul National University

From November 2016 to March 2017, Korean citizens protested against the incompetence and corruption of the government and the president. This national protest took the shape of candlelight vigils gathering. The most crowded place was Gwanghwamun Square in Seoul, and over time, the number of people began to increase. However, the organizers’ estimates of the number of people gathered and the police's estimates differed by a factor of four. For example, police reported that around 250,000 people gathered when the organizers reported that a million people gathered for the president's resignation. As the police and organizer's opinions differ so much, the number of the attendees of the candlelight vigils have emerged as an important social and political issue. Some physicists began to be involved in this debate. A scientist majoring in material engineering used hydrodynamics to conclude that the number of candlelight vigils was similar to the organizer’s estimates, and an experimental particle physicist used a program to count the number of particles in the accelerator to count the number of candles taken on the photo. They tried to reduce uncertainty by exchanging opinions through SNSs like Facebook, and again refuted the criticism against their counting. Examining the controversies surrounding the candlelight counting that took place in winter 2016-2017, this paper highlights the co-construction of the process by which scientists reduced uncertainty in their practice of counting and the alternative network of scientists and engineers different from established organizations.

EyeCan: A Corporate Research, Appropriate Technology, and Responsible Research and Innovation in Korea June-Seok Lee, DGIST (Daegu-Gyeongbuk Inst. of Sci. and Tech.)

An eye mouse is a device to control the computer with eye movements. Mainly developed for disabled persons who suffer from Amyotrophic Lateral Sclerosis (ALS), also known as Lou Gehrig’s disease, this technology was designed to help patients who can only move their eyes. However, the commercial version of an eye mouse, such as Quick Glance 3 costs about $7,000 and is too expensive for middle-class consumers. Social demand for more affordable technology has been increased. Upon this social cause, a group of voluntary researchers at Samsung Electronics, a
The Controversy over the ‘ROKS Cheonan Sink’ and the torpedo, and a detonation experiment. However, the JIG’s three kinds of white absorbed materials collected in the hull, the results and computer simulations of the hull damage shape, and scientific facts were challenged by some scientists, who proposed contradictory experimental findings that seem to refute JIG’s consensus and conclusion. Although established scientific societies remained largely silent over the Cheonan warship issue, these individual scientists’ active participation in the controversy provoked a series of intense public debates on the Internet. This paper attempts to look into how the JIG constructed the blackbox of “scientific facts,” and how this blackbox is then destabilized by alternative claims. For this, I will analyze the JIG’s official scientific investigation report, the interviews and the court testimonies of non-JIG scientists involved in the controversy. By examining why the scientific investigation of the JIG failed to form a consensus, I will show that the issue of democratic participation should be seriously included in STS’s discussion of the construction of ‘scientific facts.’

The herbal pharmaceutical industry in South Korea Eunjeong Ma, Pohang University of Science and Technology

This paper presents a recent history of reorganization of herbal pharmaceutical industry, with focus on globalizing strategies and their consequences in South Korea. The emergence and expansion of biotechnology companies in the heath market since late 1990s can be attributed to earlier government’s push to cultivate the herbal pharmaceutical industry. The paper first addresses the government’s initiatives to mass-produce herbal medicines and move on to a particular biotechnology company that produces healthy functional foods and natural drugs. In early 1990s, the government recognized Korean medicines as potential market player with a competitive edge and decided to boost the domestic pharmaceutical industry. The government pushed forward a series of projects related to the cultivation of the herbal pharmaceutical industry. Growing out of these historical and political contexts, Naturalando Tech (NeT) is a biotechnology venture company that researches and manufactures phytoestrogen products. With domestic and international recognition, NeT emerged as a star/exemplary venture in the heath market since that produces healthy functional foods and natural drugs. In early 2000s, NeT was at the center of public outcry over its market hit, Cynanchum wilfordii (baek su oh) products. Baek su oh products are a combination of three medicinal plants and help the symptoms of menopause and peri-menopause according to Korean herbal pharmacopeia. Thus, the second part of the paper will trace and analyze the emergence of herbal biotechnology company and its globalizing strategies and consequences at the domestic market.

Chair: Wen-Hua Kuo, National Yang-Ming University
Discussant: Hyomin Kim, University Of Illinois

09. The Poetics of Denial: Knowledge-Making and Expertise in a "Post-Fact" Era I

If pundits are to be believed, we are living in a “post-fact” era—a moment when science and expertise are being thoroughly unsettled. Following the contentious Brexit referendum and the divisive U.S. presidential election, in which “lies” urged but often outstripped “fact checks,” there has been a renewed emphasis on personal belief over extrinsic evidence, on individual experience over scientific consensus. Though these are by no means new developments (STS scholars have long interrogated the conservative distrust of intellectualism, for example), today’s policy worlds seem to invite more boastful denial than their predecessors. In this context, this panel aims to explore the poetics and consequences of such denial.

Focusing on processes of knowledge production, inscription, translation, and occlusion, of wordplay and rhetorical evasion, we consider the style of so-called political assaults on scientific sense-making. What techniques are being used, among counterpublics, citizen scientists, and lay audiences, to undercut traditional expert knowledge? What forms of thinking, knowing, and imagining are offered in their place? What are the technologies of perception that render science politically (in)sensitive, that destabilize its authority, that strategically—even mockingly—defang it?

And in this process of unsettling, what role does “common sense” play? This panel invites scholars working on examples of contested knowledge—from climate change and energy to toxicity, polling, and forensic science—to reflect on these questions while also considering the status of “denial” within the humanities. As scholars studying science, expertise, and policy, how is our own sense-making bound up in these debates?

Participants:

Climate Science, Censorship and Denial: A Sociotechnical Imaginary Rosalind Donald, Columbia University

Very early into the new administration, the United States Federal Government blocked state-employed climate scientists from speaking to journalists about their work. Outraged politicians, activists and journalists have cited this move as evidence of the Trump administration’s “anti-science” views - and linked it in particular to campaigns denying climate science. I argue that labels such as ‘pro-science’ and ‘anti-science’ obscure the stakes involved in arguments about climate science. Using the STS concept of the sociotechnical imaginary, I stabilise the arguments involved in arguments about climate science by embedding them within the context of state infrastructures, policies and worldviews. To do so, I compare historical examples of state suppression of science - Galileo’s cosmology and Lysenkoism in the USSR - with more recent state and corporate censorship of climate scientists. These examples suggest that it is not science or expertise in general that is under attack, but specific branches of science, for particular reasons. Moreover, I show that the censorship of scientists is not an aberration but part of a continuum of ‘commonsense’ responses to climate change that also include market-based climate policies. These responses protect existing modes of growth and resource extraction without preventing scientists from doing research. Borrowing methods from history of science, I introduce the concept of science as communication to the study of sociotechnical imaginaries. Science requires communications infrastructures, utilises media and is subject to interpretation by receivers. By deploying similar infrastructures of communication (e.g., press coverage, publication of reports, speaking engagements, language) denialist
arguments have in turn helped to legitimise the censorship of climate scientists. REDD and the Politics of Denial: Repackaging Old Forms of Intervention Raquel Machaquéiro, George Washington University

Since at least 2005, the conservation of forests has emerged as one of the main instruments to address the problem of climate change. Parties at the United Nations Framework Convention for Climate Change (UNFCCC) have agreed accordingly on forms to count the amount of carbon contained in poor countries’ forests and commodify those forests as carbon sinks, in an effort to off-set industrialized countries’ pollution. Known as REDD (Reduced Emissions from Deforestation and forest Degradation), this market mechanism has spurred significant investments in the Global South. In this presentation I trace a brief history of REDD and draw on ethnographic material from fieldwork in Acre (Brazil) and Zambézia (Mozambique) to unveil several key moments of denial that its implementation has entailed: the denial of carbon as the commodity spurring REDD, the denial of REDD as a market-mechanism, and the denial of REDD’s failure as it was initially conceived within the UNFCCC. Involving processes of knowledge production, inscription, translation, and occlusion, these successive denials have both advanced REDD’s implementation and at the same time transfigured the mechanism itself and its supposed goals. REDD has been an excuse to legitimize other forms of intervention - unrelated with forest conservation - that expand corporations’ interests and transnational governance into new areas. In the end, I question the meaning and effect of these denials in the context of transnational governance and their implications for Acre and Zambézia, as well as to the international process of REDD’s policy-making.

The Certainty of Denial Jonna Yarrington, University of Arizona

What kinds of certainties are powerful enough to contest scientific knowledge? What types of beliefs can dispute or disable scientific authority, and what kinds of communities accept them? Tangier Island, Virginia, is a community of approx. 470 residents, whose island is eroding into the Chesapeake Bay due to anthropogenic sea-level rise, and will be uninhabitable within the next half-century. Residents are working watermen and their families, climate change deniers, science skeptics, and Zionist Christians. Confronted by the threat to their lives, lifestyles, histories, and properties, which both the state and scientists appear unwilling to save, they contest scientific reasoning provided for the challenges they face. Semiotician Roman Jakobson offered two axes of poetics: paradigm (similarity) and combination (contiguity). To look at human poetics of change on Tangier—the partial disappearance of the physical land and the human consequences—is to look at the paradigm of Tangiermen’s understandings of change and to consider the proximity of their positions in socio-economic and political hierarchies. Using data from anthropological fieldwork, I argue that Tangiermen’s denial, alternatively their certainty, cannot be understood apart from the context of their realities, the poetics of shared ideological precepts and the meaning surfacing from complex ladders of social positioning on the island and in the region. Furthermore, as a social scientist, it seems the heaviest responsibility is not representing science to Tangier, but representing Tangier to science, in hopes of clarifying contributing factors, paradigmatic and combinatory, for the production of certain denial on an undeniably sinking island.

Chair:
Chloe Ahmann, George Washington University

Discussant:
Sabrina Peric, University of Calgary

020. Data-bilities: Rendering Data Accessible, (Inter-)Operable, Mobile, Accountable

Traditional (Closed) Panel
2:00 to 3:30 pm

Sheraton Boston: Floor 3 - Beacon E

Contemporary developments in many areas within STS research are concerned with data driven technologies, as concrete assemblages or socio-technical imaginaries. These technologies promise and require mobilization of massive amounts of heterogeneous data between information management systems and infrastructures that are able to combine different forms of information, as well as to modify information for a wide range of uses. Since those applications are never neutral, recent scholarship asks how data driven technologies are imbued with political, strategic and economic interests that impact the ways in which information can be used. While critical studies of data, algorithms, software, code and platforms aim at gaining a reflexive understanding of our contemporary media/technological condition, others ask how to make use of the available data and computational processes in the humanities and social science scholarship. In the area of digital methods, traditional methods are rethought and new methodological approaches are developed which bring forth tools and new approaches to research new sites. In this panel, we would like to push the discussions further into how we can change, improve and invent methodological approaches for critical inquiries when working with digital data. Possible questions include: How can digital methods be used for critical analysis of data-driven technologies? How can we critically reflect upon analysis tools and their ontological consequences for social science research and critical data studies? What does the role of tinkering with (research) data play when we're considering methodological aspects of data? We aim at sharing experiences/approaches/ideas, and creating a space for reflexive discussions.

Participants:
Climate Data Rescue's "Guerrilla Archiving" as Counter-Data Action britt parts, UCLA Department of Information Studies

Anticipating the incoming Trump administration’s hostility to climate science, the University of Toronto launched the first “data rescue” event in December 2016, creating a template for a kind of activism it labeled “guerrilla archiving” to describe volunteers’ tactics of seeding, scraping, and bagging to disperse federal scientific climate data, documents, and webpages into an international patchwork of repositories. In recent months, similar events cropped up across the United States, guided by the Environmental Data Governance Initiative's (EDGI) Data Rescue efforts. The need for such work became palpable as official statements on anthropogenic climate change began disappearing from governmental websites, within hours of Trump’s inauguration ceremony. “Guerrilla archiving” is a neologism—a critical term missing from archival literature. This paper examines Data Rescue’s guerrilla archiving efforts to situate the term within archival and critical data discourses and highlight its novelty as a contemporary case of both: Archiving in the face of political expediency is common in many types of radical archival projects. However, while radical archival work seeks to pluralize a community’s narrative through alternate stories and interpretations, EDGI’s web archiving and mirroring pluralizes and distributes the material context of the data. It distributes the data as a public good, generating occasions for data literacy projects which re-envision power and political action related to these datasets. In this sense, “guerrilla archiving” exists as a unique example of counter-data action and stactivism as it imagines new interventions to reconfigure power through distributed data management and use.

Data Infrastructures and Institutions for Climate Model Intercomparison Projects Matthew Mayernik, National Center for Atmospheric Research; Paul N Edwards, University Of Michigan

Since the late 1980s, model intercomparison projects (MIPs) have become increasingly crucial to climate change science. MIPs permit apples-to-apples comparisons of disparate climate simulation models. They play central roles in the Intergovernmental Panel on Climate Change (IPCC) assessment reports, while the data they generate have been used in thousands of scientific publications. MIPs develop benchmark experiments, standardize metadata, and collect and distribute large volumes of data. When they work well, MIPs create common vocabularies and shared data resources, not only improving the quality of
How numbers travel between sites: On quantifications within quantifications generates new kinds of (affective) relationships registries, rating sites), (hospital) IT system to collect and code practices, we empirically and conceptually explore how numbers Drawing on empirical research on quality registries, hospital patient and professional associations, quality and information calculate accountability metrics. Infrastructures also encompass number of pressure ulcers and waiting times) and algorithms to patient data (e.g. outcomes on performance indicators like the they nurtured and cared for? Dwelling on the track's theme, we turning the gaze upon our research selves, we explore our own between actors that may be geographically dispersed. Lastly, looking specifically at the development of the Earth System Grid system in the 1995-2005 time range, this paper will provide insight into how climate data infrastructures were envisioned, built, nourished, and re-envisioned.

How numbers travel between sites: On quantifications within and across practices of healthcare Iris Wallenburg, institute for Health Policy and Management; Anna Essén, Stockholm school of economics, department of business administration; Roland Bal, Erasmus University Rotterdam Healthcare systems have grown into ‘big data houses’: numbers are collected and stored on all sorts of results, ranging from patient outcomes and professional performance to reimbursement data. Quantified data is expected to spur innovation, efficiency, and tailored care, and offers new possibilities to govern professional activities. However, critical studies of accounting have revealed numbers’ heterogeneous nature. Numbers are generated in one situation, and complemented with other numbers and sliced and diced in new ways at other sites, leading to a continuous stream of new metrics and related governance practices. The extant healthcare literature has not theorized or empirically illustrated the human and non-human actors underlying the tracking and re-combination of numbers across sites in healthcare. To this end, we explore the socio-technical infrastructures of quantification that generate numbers and make them travel. Infrastructures involve technological platforms (e.g. registries, rating sites), (hospital) IT system to collect and code patient data (e.g. outcomes on performance indicators like the number of pressure ulcers and waiting times) and algorithms to calculate accountability metrics. Infrastructures also encompass patient and professional associations, quality and information departments, training programs for professionals, etc. These infrastructures encapsulate both highly automated/technical and manual/mundane work of filling in and transforming messy patient information into digital data, and responding to this data. Drawing on empirical research on quality registries, hospital performance indicators, and public authority monitoring practices, we empirically and conceptually explore how numbers are co-constituted among and between different sites and the affectivities they produce: how do numbers travel, and how are they nurtured and cared for? Dwelling on the track’s theme, we examine how we can use digital tools to study how the travel of quantifications generates new kinds of (affective) relationships between actors that may be geographically dispersed. Lastly, turning the gaze upon our research selves, we explore our own (numerical) sensibilities when scrutinizing unfolding digital accountability metrics.

Practices of datafication and the crafting of new forms of sociality in Indian Public Health Séamas Kelly, University College Dublin; Camilla Noonan, University College Dublin In this paper, we draw on an ongoing, ten-year longitudinal study of attempts to use ICT to transform key features of the organisation of public health service delivery in India. While these efforts at ICT-enabled transformation have, as yet, yielded rather underwhelming results in most of the states that we have studied, we report here on one fascinating exception (State Beta) that provides insight into the localised crafting of a novel and distinctive form of ‘dialogic’ management sociality around data use. On the basis of the detailed empirical case presented, we offer a performative, praxeological analysis of how the cultivation of new practices of datafication in Beta contributed to the production of a radically different kind of management sensibility that was associated with distinctive ways of disclosing the world – or ways of knowing, feeling, relating, and being oriented to the future. Drawing on a Heideggerian intellectual tradition that emphasizes the ontologically discursive features of skilled craft activity (and associated forms of affectivity or moods), we trace how these new practices were fostered, how they were reconciled with pre-existing dominant forms of ‘authoritarian-bureaucratic’ sociality, and what their doing did in terms of the enactment of specific kinds of subject and object positions. In so doing, we offer a perspective on the role of skilled craftmanship in the transformation of knowledge, technology, and ways of being in the world – i.e. in practices of ‘knowledge making’ or, perhaps more provocatively, in ‘being making’, world disclosing, or future-making.

Blockchain Databases and the Ongoing Drive to Secure Information Brian Kimkee, Cal Poly SLO This paper explains and explores blockchain databases, a category of information technology with important implications for cybersecurity professionals. Blockchain databases allow for new ways of storing and distributing data, as well as timestamping digital transactions, using current generation network technologies. Because blockchains promise increased security to users, and new levels of accounting for digital assets, the use of such databases has spread rapidly worldwide among both individuals and institutions. This paper begins with a simple explanation of blockchain database technology, followed by some more complex examples. We then examine a real-world application that highlights the use of blockchain databases in the realm of healthcare and public health. Throughout the case study, we provide commentary on the significance of blockchain technology. This paper builds on longstanding academic conversations about the nature and function of databases, as well as on more recent conversations about the economics and culture of algorithms. The central contribution of the paper is to further raise awareness of blockchain databases and to highlight links between blockchains and cybersecurity.

Chair: Victoria Neumann, MCTS, Technical University of Munich

021. Making Sense of Practice by Engagement II

Traditional (Closed) Panel 2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon F

Building on discussions and presentations from 4S/EASST in Barcelona as well as other recent conferences, this open (and experimental) panel seeks to create spaces for alternative knowledge practices that examine the epistemological and discursive methods of creating and implementing different ways of knowing and imagining the world. This panel takes seriously Shapin and Schaffer’s claim that “solutions to the problem of knowledge are embedded within practical solutions to the problem of social order” (1985:15). We ask, “how have collectives of practice developed and what are the futures that these collectives imagine?” In conversation with the 2017 4S theme of (In)sempolities, we hope to engage ways of sensing and sense-making that often exist on the margins or at the boundaries of dominant practices within science and technology. We encourage work that examines how practitioners interpret their own work and if alternatives are indeed as radical as initially assumed. Are alternative knowledge producers in dialogue with hegemonic practices, or are practitioners engaging in novel ways of mapping/charting scientific and epistemic terrains? Most importantly, we expect presenters to abandon the formal presentation style and come to panels prepared to engage the audience in short 15 minute workshop-type experiments that directly communicate alternative ways of making sense of practice. Based on the success of a similar panel we organized last year, we are prepared to work closely with presenters to ensure - at the very least - only partial failure.

Participants:
Playing With Tools and Making Sense of Information Security
Craft, Computation, and Technology: The Practice of Wire-bending in Trinidad and Tobago

Vernelle A. Noel, Penn State University

The craft practice of wire-bending developed in the 1930s as a "special[2]ed art, combining elements of structural engineering, architecture, and sculpture" to create two-dimensional (2D) and three-dimensional (3D) forms (Noel 2015; "Lewicito 'Cito Velasquez" 2015). My paper examines how craftsmen share knowledge with others, learn about themselves, and explore the natural world through this material practice. Drawing on ethnographic research conducted in Trinidad and Tobago between 2012 and 2016, my paper studies the material, discursive, and technological practice of wire-bending, and gives a brief auto-ethnography documenting my experience wire-bending an artifact. I explore the following questions: (1) How do wire-benders transfer embedded and tacit knowledge, and learn about themselves and the natural sciences in this crafting process? And (2) How do they use tools and technologies in their practice? I will show how wire-benders develop an understanding of the natural sciences and themselves through embodied practices of 'designing and making' activities associated with the craft. This understanding is facilitated by the use of tools and technologies, which enable tactile, cognitive, sensuous engagement between their bodies, and materials (Ingold 2007; Ingold 2010). In this work, I also discuss a computational description of wire-bending: an abstract, mathematical construct visually describing the craft of wire-bending. Named the Bailey-Derek Grammar (Noel 2015), it enriches our understanding of the wire-bending craft. This work has implications for how we can better describe knowledge in craft, the transformation of local knowledge, and production of new knowledge in craft using ethnography, computation, and technology.

The Sensibility of Surfing Uncertainty

Zachary Parke Dixon, Embry-Riddle Aeronautical University

A renewed interest in non-Cartesian metaphysics seen in New Materialism, Object Oriented Ontology, Multiple Ontologies, and other posthuman scholarship, is raising new questions about the nature of causality. Since these metaphysical projects - particularly those with an ontologically focus - invite a multiplicitous understanding of reality they also invite new, disrupted models of cause and effect. As Mol (1999) posits, Talking about reality as multiple depends on another set of metaphors. Not those of perspective and construction, but rather those of intervention and performance. These suggest a reality that is done and enacted rather than observed. (p. 77) Mol’s focus on performance privileges kairotic timing, space, place, and the material surround, confounding our ability to accurately determine who or what is directly responsible for actions. If the sciences and its public policies are attempts to manage uncertainty, then metaphysics that multiply uncertainty represent a serious existential challenge. In light of such disrupted notions of causality, there is a pressing need for the sciences to cultivate new sensibilities to better decide and act with uncertainty. This paper works to articulate a sensibility for acting within uncertainty by pairing Alfred North Whitehead’s process based philosophy - or "Philosophy of Organism" - with a case study of the World Surfing League’s "Big Wave Tour". Understood in terms of Whitehead’s ontological work, the Big Wave Tour’s ability to organize and execute large-scale sporting events around the unpredictability of ocean swells offers a compelling model for how the sciences, and the public policies that rely on their work, can act productively in deeply uncertain waters.

Chair: Ellen Foster

Discussant: Tania Pérez-Bustos, National University of Colombia

022. Science, Technology and Sport II

Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Beacon G

While sport studies scholars have established sport as a key site of cultural meanings and social relations, fewer scholars have engaged these issues within technology and science studies frameworks. This panel invites papers broadly concerned with social and cultural inquiry into the intersection of science, technology, and sport. Potential topics include, but are not limited to: sport technologies and technologies of the active body; issues related to medicine, risk and sport; performance enhancement and bioethics; disability, gender, race, class, and sexuality, technology and sport; sporting labs and scientific practices; representations of science and sport; sport analytics, data visualization, and the quantified self; professional gaming and eSports; and, infrastructure, sustainability, and sport.

Participants:

"Nomos and Narrative": How Law Comes to Know the Science of Brain Injury and Sport

Kathryn Henne, University of Waterloo/Australian National University

The paper is part of an ongoing socio-legal study of how knowledge about brain injury becomes deployed and understood in different domains of social activity where concussions are a growing concern. Sport offers one such site for inquiry, especially in light of recent litigation involving professional sport leagues in North America. Lawsuits related to professional football and hockey have encouraged greater public scrutiny of potential risks and dangers of brain injury. Although neuroscientific evidence serves as a way to explain the effects of injury and justify demands for compensation, many researchers and sports medicine practitioners characterize scientific findings as emergent. This paper examines how interpretations of neuroscientific knowledge become constitutive elements within the creation of legal narratives and myths, both of which, as Robert Cover argues in his seminal piece, "Nomos and Narrative," are essential to the normative world of law. Here, I draw on legal case analysis, archival research, and qualitative interviews with legal and scientific experts to attend to the strategies that different actors evoke to describe and make sense of the nature, scope, and effects of brain injury. I also consider how actors involved in litigation render sport as a field, itself arguably a distinct normative universe. In doing so, this analysis takes a break from common STS approaches that focus on the material conditions of science and technology to instead ask: how do legal narratives, particularly those related to sport, contribute to the materialization of brain injury as a condition in the world?“

"A Clear Conscience": Advertising Football Equipment and Responsibility for Injuries

Kathleen Elizabeth Bachynski, American Academy of Arts & Sciences

This paper examines how manufacturers of protective football equipment have shaped public understandings of youth football safety in the United States. An analysis of historical equipment
advertisements, newspaper accounts, company research studies, and legal proceedings indicates that equipment advertisements and product liability cases were particularly influential, in sometimes contradictory ways. Advertisements for protective equipment inherently signaled to consumers that football carried a certain element of risk. Manufacturers of protective gear thus had to portray a nuanced portrait of the injury hazards associated with the sport: they needed to depict youth football as sufficiently risky to require the purchase of extensive equipment, but not so risky as to be inappropriate for children. Equipment ads communicated that technology and engineering were effective in mitigating risks, and often specifically emphasized manufacturers’ alliances with coaches and doctors in working to protect children. Yet in defending themselves against product liability lawsuits, manufacturers emphasized the lack of relationship between helmets and the injuries of individual plaintiffs. Manufacturers further argued that individual coaches, parents and children should take responsibility for preventing football-related injuries because they had voluntarily chosen to assume the risks of the sport. They also threatened that lawsuits would doom football by rendering sports equipment manufacturing and insurance prohibitively costly. Ultimately, sporting goods manufacturers largely succeeded in framing the issue of football safety as a matter of individual responsibility, while also presenting protective equipment as necessary and sufficient to address safety concerns.

Reading Minds: Trauma and Neuroscience in the Age of CTE
Matt Ventresca, Georgia Institute Of Technology
This paper investigates two pivotal cases in building (and disrupting) the scientific consensus about the connections between sports, brain trauma, and the neurodegenerative disease known as Chronic Traumatic Encephalopathy (CTE). The first concerns the 2016 death of Kevin Turner, a retired NFL fullback who was diagnosed years earlier with Amyotrophic Lateral Sclerosis (ALS) and was believed to have died as a result of this condition. Yet following his passing, scientists discovered that Turner’s brain exhibited advanced levels of CTE and attributed his death to the now infamous neurodegenerative disease. Dr. Ann McKee, the lead scientist who studied Turner’s brain post-mortem, asserted that whether abiding by the clinical diagnosis of ALS or the neuropathological diagnosis of CTE, it was “fair to say [that] football caused his death.” The second case involves the 2015 suicide of Todd Ewen, a retired NHL enforcer who in his final years demonstrated symptoms characteristic of CTE, including memory loss and depression. After examining his brain post-mortem, however, researchers announced that Ewen did not have CTE as many in the hockey world and scientific community suspected. In this paper, I compare and contrast the reactions to the deaths of these two retired athletes. By analyzing media coverage of the medical controversies surrounding each player and selected scientific studies of CTE, I interrogate how public narratives detailing these neuroscientific “discoveries” shed light on complex manifestations of biological determinism in the context of sport’s “concussion crisis.” I also advocate for expanding definitions of trauma by re-situating cultural and emotional experience alongside the neurobiological explanations that dominate contemporary sports media discourse.

The (In)Sensibility of Authentic Hormonal Masculinity. Cora Olson, Virginia Tech Carilion School of Medicine
testosterone use by athletes. During these early years of testosterone detection, testosterone made sense of as “the male sex hormone” in the popular imagination while anti-doping researchers were more ambivalent. While these researchers often made sense of testosterone as a hormone produced in both male and female bodies, they believed it was responsible for masculinization of all bodies and the subsequent conferment of athletic advantage on these bodies. This presentation specifically looks at the use of gas chromatography-mass spectroscopy (GC-MS) and radioimmunoassay (RIA) as these techniques relate to the “testosterone to epitestosterone” (T/E) ratio that defined testosterone doped athletes. These techniques shifted “authentic” masculinity from an aesthetic quality usually tethered to male bodies to a matter of hormonal composition in both male and female bodies. These researchers established a technical means of evaluating a moral characteristic—doping—as well as a technical moralization of gender. Established through population-based steroid profiles, these techniques aligned with a hypermasculine model of athletes where both male and female athletes were permitted to have up to six times the “normal” amount of testosterone per biological sex category circulating through their bodies when tested. These researchers defined athleticism as a category of bodies capable of possessing more testosterone than the “normal” population. Yet, this non-normality had to be policed at the margins to protect the non-normal from the immoral. This policing happened through the (in)sensibilities bound to the new “authentic” forms of hormonal masculinity ascribed to both male and female athlete bodies.

Binary Vision: Sex Difference and the Reproduction of Ignorance at the Olympic Games Madeleine Pape, University of Wisconsin-Madison
Scholars in Science and Technology Studies (STS) have shown that the corollary of knowledge production is its nonproduction, often termed nonknowledge or ignorance. In order to understand these processes of nonproduction, a variety of scholars have focused their attention at the institutional level: the role of the state, corporate interests, and the enterprise of academia in promoting particular research agendas while disabling the pursuit of others. In this paper I consider the relationship of these institutional processes to the broader public uptake of knowledge and nonknowledge. Focusing on the controversy that erupted at the Rio Olympic Games in 2016 over the right of women athletes with naturally elevated testosterone to compete in the female category, I consider how particular ideas about sex difference—as binary, biological, and distinct from gender—travel within the track-and-field world, particularly at its most elite level. I present findings from 30 interviews with athletes and coaches who participated in track-and-field at the Games, representing a variety of English-speaking countries. The majority of their accounts reveal pervasive ignorance in the elite track-and-field community about the complexity of sex difference, intersex, and the role of testosterone in shaping athletic performance. Using the terminology of Frickel and colleagues (2010), I identify at least two forms of ignorance: negative knowledge, or knowledge considered not worth pursuing, and nescience, or a lack of knowledge about the unknown. These are interrelated: athletes and coaches are both unaware that there has been scientific resistance to testosterone-based eligibility policies for women, and they simultaneously elect not to seek out further information to better understand the issues at play. Key international sports governing bodies play a key role, including the International Olympic Committee (IOC) and International Association of Athletics Federations (IAAF), by institutionalizing a culture of sex-as-binary and failing to provide a balanced and accessible account of the relevant scientific issues. However, athletes and coaches also actively produce this culture and shape the actions of their governing bodies by continuing to circulate, often through very informal interactions and engagement with social media, particular notions of “fairness” as it relates to sex difference. Crucially, the social and institutional reproduction of ignorance occurs specifically in relation to the scientific dimensions of the issue, and not its moral or ethical ones. The interviews suggest that the English-speaking world of track-and-field is grappling with how to reconcile contemporary trends in gender politics, including the recognition and legal gains of the intersex and transgender movements, with a rigid binary system of categorization that is presumed derived from nature rather than a social system of gender. Here ignorance serves to maintain the status quo. I conclude by considering the implications of this research for theories of ignorance and nonknowledge within STS, particularly in terms of how the social and institutional reproduction of ignorance is gendered.

Chair: Mary McDonald, Georgia Institute of Technology
This panel investigates the ways that increasingly knowledgeable patients and caregivers—sometimes known as “expert patients” or “Drs. Mom and Dad”—are reconfiguring medical authority. Doctor-patient relationships are traditionally rigidly hierarchical, in part because doctors have possessed greater knowledge than their patients. Today, however, this is changing. Thanks in part to new information technologies that make biomedical research widely available while simultaneously making possible new communities centered on disease and illness, patients and their caregivers are increasingly expert about their conditions and treatment options. No longer reliant on their doctors as their main source of information, patients and caregivers can learn about new research, compare “standard” treatments among hospitals and even between countries, and gain an overview about how others with their condition are treated. They are marshaling this new-found expertise to advocate for themselves and others, while unsettling assumptions that “the doctor knows best.” We invite papers that explore the reconfiguration of medical authority and its intersections with numerous themes within STS, including the construction and contestation of expert knowledge, professionalization, and the social study of pharmaceuticals and medicine. Papers might also address how the reconfiguration of medical authority raises questions about what counts as accurate, authoritative, or actionable knowledge; considerations of race, class, and gender in the formation of expert-patients and -caregivers; tensions and bridges between theoretical and experiential knowledge of health, disease, and treatment; access to information and health-related communities; the reasons that patients and caregivers become their own medical experts; and variations in professional responses across national and institutional contexts.

Participants:

Fetal Ultrasound in Russia: Practices of Acceptance and Rejection
Anna Ozhiganova, Center of Medical Anthropology, Institute of Ethnology and Anthropology, Russian Academy of Sciences

Repetitive fetal scanning being a part of modernized medicalized pregnancy is a common feature of prenatal care in Russia. However pregnant women have an ambivalent attitude towards this practice and fetal images themselves, called “images of contradiction” in anthropology [Taylor 1998]. While some women seek to continuous fetus monitoring, others refuse ultrasound scanning fully or partially. Medical specialists perceive their behavior as irrational. My field data, including participant observation in the childbirth preparation centers and in the Orthodox, Neo-pagan and New Age communities, the interviews with pregnant women and home midwives, has exposed that fetal ultrasound is accompanied by a lot of fears. Women believe that under the influence of “harmful radiation” a child will turn into a “mutant”, that the ultrasound scanning is “against the God”. In sum, they are talking about two things: the direct harm to the child and their unwillingness to be aware of possible fetal abnormalities. In most cases, the diagnosis of fetal abnormalities does not imply their correction. Doctors prescribe additional tests, which are often tiring and risky. Usually women are offered to make an abortion. Thus fetal ultrasound leads to the fact that pregnant women are beginning to perceive themselves as being in the process of carrying a potential “fetal catastrophe” [Ivry 2009]. The campaign against abortion, supported by the state, is in the conflict with the normalization of abortion in the cases of suspected fetal abnormalities. The institutional distrust to medicine in Russia exacerbates the situation. References: Ivry, Tispuy

Hawon Chang, Seoul National University
The “autism epidemic,” which started in developed countries such as the US and UK, is emerging as an important social issue in more and more countries. In Korea, one of those countries, Autism Spectrum Disorder(ASD) has also been rapidly changed from a rare disease to an epidemic since the mid-2000s. For example, a recent study on the prevalence of ASD in Korea reported that the prevalence of ASD in Korea was 2.64%, which exceeded the predictions of experts, two-thirds of whom were in general schools without any relevant diagnosis and treatment. Including this kind of latest autism studies, autism-related news, a variety of newly developed therapies, patient advocacy groups’ activities, and, above all, the discourse of the Internet community of parents of children with developmental disabilities, affect not only public awareness of autism, but even the perception of autism among pediatric specialists in Korea. Then, how has autism become an epidemic in Korea? How and why is ASD getting diagnosed more? Who, by what kind of verbal and technical tools creates more cases of ASD in Korea? As a starting point to answer these questions, this study examines the content and rhetoric of the discourses of early diagnosis and early intervention in ASD, currently prevalent in Korean society, and different ways of reasoning and judgment of various actors making or responding to such discourses. Here, actors include parents of children with autism or related developmental disorders, as well as various experts such as pediatric psychiatrists, geneticists, epidemiologists, therapists, etc. The discourse of various actors, obtained through a multi-sited ethnography including in-depth interviews with ‘autism experts’ and participatory observation of the Internet communities of families with children with autism and other developmental disorders, was analyzed. The issues of expertise and lay participation have been important themes in sociology of medicine. In the case of ASD, several STS researchers have actively studied the participation of various actors including paraprofessionals, autism patients and families and patient advocacy groups in the field of autism science. However, these studies have limitations in that they tend to focus on the contribution of lay-people to mainstream autism researches or the
improvement of social awareness of autism. This study examines how diverse empirical knowledge and evidences of various actors are arranged and rearranged in epistemic hierarchy, as they are mobilized to spread the discourses and practices of early diagnosis and early intervention of ASD in Korea. This will reveal more in detail the dynamics of various epistemologies of autism.

Learning Through the Sensibilities of Chronic Self-Care: STS and Diabetes Management

Vincent Pidoux, University of Lausanne, Faculty of Social and Political Sciences

Self-care plays a pivotal role among people living with diabetes, as it is required by healthcare policies. Diabetes self-care and management promote autonomy and lifelong duty to make the good informed choices, which affect the very experience of the people living with diabetes. Since the discovery of insulin in the 1920s, self-management and self-care have played a pivotal role among people living with diabetes (PLWD). This paper aims at exploring the required active participation of PLWD in contemporary French-speaking Switzerland. It is argued that an STS approach can help understand the way policy, organisation of care as well as personal and interprofessional levels are embedded in the materialities (leaflets, programs, websites, devices, etc.) which are designed and offered to PLWD and in their learned sensibilities (like e.g. recognizing one’s own symptoms). This contribution’s broader aim is to reflect on knowledge translation through tool-supported practices in healthcare, including the learned sensibilities of the PLWD.

“ Aren’t these just desperate self-helpers trusting unreliable health-information online?” Ane Kathrine Gammelby, Aarhus University

Over the last decade it has become increasingly common for lay people who suffer from long-term health-issues to consult Facebook-communities where publics of fellow sufferers discuss their symptoms, courses of illness, and health-related sense-making with others who have somehow experienced similar bodily sensations and been similarly exposed to the jungle of health information and healthcare services. Based on ethnographic research in digital communities discussing health-issues and among the users of these communities, this paper analyses within the framework of situational analysis (Clarke, 2005) the digital practices of health-related knowledge-construction that online lay-communities account for. As the perspectives conveyed and the knowledge constructed in these digital lay-communities do often vary from evidence-based medical sense-making, the digital practices of crowdsourcing lay-experience and compiling various forms of health-information challenge both medical hegemony on the domain of health and medical authority in the patient/doctor relationship. However, bypassing medical authority and making sense of one’s bodily sensations by means of alternative sources of expertise, such as one’s peers on social media, is not a new practice. Historically, evidence-based medicine has never been considered a universal key to individual coping (Lassen, 2014). Other forms of expertise, such as everyday, practical, or experiential expertise might as well be relevant. Social media communities discussing health exhibit this demand for and experienced usefulness of such alternative expertise. Therefore, as researchers we need to acknowledge these digital practices of knowledge-construction in their own right; not by evaluating them on the premises of evidence-based medicine, but by researching their pragmatic usefulness. Clarke, A. E. (2005). Situational analysis: grounded theory after the postmodern turn. Thousand Oaks, Calif: Sage Publications. Lassen, T. (2014). Patientrollet et historisk perspektiv. In A.-M. Graubæk (Ed.), Patientologi: at være patient (pp. 213–230). [Kbh.]: Gad.

Chair: Nicholas Buchanan, University of Freiburg


Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Berkeley

Recently, questions of security — as a set of practices, power relations and socio-technical configurations — have reappeared in STS, security studies, and criminology to understand visualizations of security. With this panel, we seek to contribute to the emerging dialogue by exploring the role of visual technologies and sensing practices for the production of (in)securities. Building on and extending the approach of visual securitization (cf. Hansen 2013), our aim is to engage with practices of inscribing and circulating different semantic and political meanings in visualizations of security. We invite contributions that explore how visualization technologies are co-productive (cf. Jasansoff 2004) for the social construction of threats and changing modes of sense-making in security governance. Submissions might address the following (non-exhaustive) topics: ● How are risks and uncertainties encoded within security-related visualizations, e.g. satellite imagery, drones, Big Data analytics for policing or heat-maps? ● Which different socio-technical imaginaries are inscribed in visualizations of security? How are visualizations of security and risk communicated differently in different contexts, e.g. in international security policy or urban policing practices? ● What are the (in-)visibilities in security visualizations, e.g. when it comes to risk assessment and disaster communication and coordination? ● What is the role of visualizations in the making of conflicts and state power dynamics? ● How can we link theoretical and conceptual approaches from STS, security studies, and criminology to understand visualizations of security?

Participants:
Neither Dead nor Alive: The Messenger is a Ghost in these Unlovely Places
Natalie Danielle Baker, Sam Houston State University

This paper investigates the experiences and perspectives of war journalists to produce a hauntology of conflict reporting. Here, such individuals serve as messengers who skirt liminal aspects of time, space, life, death, and meaning, and provide visualizations into, and messages from insecure worlds. Specifically, contexts of extreme disruption foreign to many western, developed environments, namely conflict. Ethnographic and autoethnographic methods of in-depth interviews, field observation, personal journaling, and archival analysis are used to produce findings. I suggest war reporting as a hauntological and liminal practice. Here, I argue acts of purposeful journeying to spaces of war through conflict reporting brings into question key aspects of social reality, such as ontological security, or a pervasive need for and creation of predictability. In the instance of war journalism, the pursuit of hauntological (in)security illuminates disjunctures in time and contiguous social worlds. Ultimately, the data point to the empirical possibility of humanity as simultaneously alive/dead, where representations of war and reporters themselves represent messengers between and within the time is out of joint worlds. I draw on critical theory, physics, philosophy, and mythology through an empirical lens to question extant considerations of time, reality, and life/death.

Pixel or it Didn't Happen: Thinking With (and Through) Terrestrial Pixels
Samantha Jo Fried, Virginia Tech

In this presentation, I will investigate the political economy of a remotely-sensed terrestrial pixel: how this most basic unit of a digital earth image is negotiated and constructed. First, I will briefly explore the guidelines that constitute accuracy in the world of terrestrial remote sensing. In this realm, accuracy -- also known as validity or “ground truth” -- is the extent to which a pixel’s discrete, digital identity aligns with a continuous, analog reality on the ground. As both the digital signatures and the on-the-ground measurements are negotiated by scientists and their instruments, I will trace the pathways by which these negotiations occurs. Secondly, I will clarify how these notions of accuracy -- both on a screen and on the ground -- guide climate science, warfighting, and resource extraction projects by way of remotely-sensed data. I aim to catalyze a dialogue around the ways in which data inform instrumentalism in terrestrial remote sensing research or, more specifically, I aim to ask the question:
How is the discrete pixel turned into an actionable thing? I will conclude that (1) the terrestrial pixel contains politically oppositional stabilities, and (2) that terrestrial satellite data is often sold as a savior of humane and environmental causes, while its most actionable findings relate to warfighting and resource extraction.

Where is Zika? Exploring the Ambiguities of Algorithms, Data and Judgment
Francis Lee, Uppsala University

This paper explores the ambiguous relation between on the one hand algorithms and data, and on the other hand human judgment in disease surveillance. A point of departure is that data-driven knowledge production is commonly described as being deeply dependent on human judgment. However, as STS scholars well know, a potential problem with this description of knowledge production is that we risk treating “human judgment” and “data driven” as pre-existing categories. Consequently this paper asks if there are other perhaps more fruitful ways of thinking about the data-driven/human judgment dichotomy? Could we perhaps ask about how data and judgment are constantly folded—giving rise to different degrees of data/ness? Drawing on ethnographic fieldwork at the European Center for Disease Control and Prevention, the paper explores three different maps of disease outbreaks and traces the processes of constructing them. The three maps outline where zika, legionella, and salmonella threats exist, but in very different ways: The zika world map is constructed through an algorithm that judges zika presence based on the date of the last reported case. The legionella map is constructed by correlating data from TripAdvisor with reported cases of legionella. And the salmonella map is constructed based on counting genetic likeness (single nucleotide polymorphisms) of different strains of bacteria—so that salmonella cases that were previously seen as separate are now classified as a coherent disease outbreak. Thus, drawing on ethnomet hodological/actor-network theory sensibilities, this paper explores processes of folding data, algorithms, and judgment in disease surveillance mapping practices.

Visualizing Absence: Images of Absence of Risk and Risk of Absence as Challenges to Visualization
Ann Rudinow Saetnan, NTNU; Rocco Bellanova, UVA

This contribution discusses challenges of demonstrating what is “absent” in so-called evidence-based policy making. In particular, it investigates the problems of creating evidence of an absence in relation to two diverse policy fields: environmental risk management and law enforcement. Taking birding as an instance of environmental documentation, images of soon-missing species seem to preserve their presence. While graphics may be used to document dwindling numbers, it remains a challenge how to envision (and communicate a vision of) a world without them, including any ripple effects of their loss. In the field of law enforcement policy, we explore the problem of documenting the low risks represented by cultural and racial “others” in “our” midst as opposed to the apparent ease with which images of crimes and criminals foster suspicion and support discriminatory policies. In our analysis we mainly engage with “public images”, i.e. graphics, pictures, posters etc. mobilized in support of policy making.

Chair:

nina witjes, MCTS TU München

025. Technological Innovation, Primary Healthcare and Social Justice

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Clarendon

Primary healthcare refers to the most essential healthcare services, based on the idea of social justice and the right to better health for all. These principles were laid down in the declaration of Alma Ata in 1978 and were subsequently adopted by WHO. Four decades later, the realisation of universal access to primary healthcare remains an unachieved goal. While new opportunities emerge from the development of new medical technologies in STS researches, there are concerns that investments in new healthcare technologies could be spent in more efficiently ways. This panel invites authors to examine opportunities, pitfalls and practical challenges of contemporary technological innovations in primary healthcare. It addresses the (in)sensibilities of S&T developments in primary healthcare from a cross-country perspective, the prism of social inequality and cultural diversity, in order to generate novel and comparative insights into the following issues (but not limited to): the use and distribution of new technologies in primary healthcare, e.g. electronic health record and medical devices; the tensions that emerge between adoption of new technologies and needs of locally-evolved models of primary healthcare, that require a certain level of flexibility and adaptability; the balance between integration of new technological innovations and need for continued investments to increase the quality and quantity of local healthcare personnel; and the logistic challenge of training healthcare staff to adequately use new technologies, as well as strategies to identify and overcome cultural barriers to use of new healthcare technology among patients.

Participants:

Chinese Diseases Question Answering System and its Influence on Health Care
Haodong Zhang, National Academy of Innovation Strategy, China Association Science and Technology; Wang Zheng, Institute of Scientific and Technical Information of China; HUI LUO, National Academy of Innovation Strategy, CAST; Jing Xue, China Association Science and Technology; Xingchuan Li, China Association Science and Technology

Question Answering System is an advanced information retrieval and natural language processing system that can automatically answer humans’ questions in an accurate, concise natural language. It can meet the needs for quick and accurate access to information. Q & A system is a very popular research field in artificial intelligence and natural language processing. It is a computer program which answer humans’ question by querying a structured database of knowledge or an unstructured collection of natural language documents. Some companies and institutes are developing question answering systems for health care and try to provide high quality information for health consumers, which will be timely, automatic and valuable service. In this paper, We review some Question Answering Systems for heath care and also have an introduction to our Chinese diseases question answering approach. The system constructs its answers from the texts which describe diseases in Chinese and are indexed and wrapped in XML tags. Interrogative sentences are deconstructed into several parts in order to form a query. The query is compared with related tags in XML document and the similarity is calculated with a deformed cosine similarity algorithm. Question Answering System is having a significant impact on health care.

Genomics for Breast Cancer Prevention: Decision-makers’ Views on Socio-ethical and Organizational Challenges
Julie Hagan, Université Laval; Emmanuelle Lévesque, Centre of Genomics and Policy, McGill University; Bartha Maria Knoppers, Centre of Genomics and Policy, McGill University

Recent developments in genomics have opened possibilities for early detection and prevention of breast cancer based on each individual’s risk level. This personalized approach could supplement existing screening programs by including younger women at higher risk of breast cancer who are not targeted by current age-based programs. But its implementation in the context of primary healthcare raises social, ethical and organizational challenges. To better understand these challenges, we conducted a 2-phases qualitative study of in-depths interviews with decision-makers. The first phase (n=16) identified opportunities and barriers to the implementation of the approach, and the second phase (n=15) focused on possible implementation scenarios. Interviewees estimated that the complexity of an approach using notions of genetics and statistics could be a factor in social inequities as it could be more difficult for women to make an informed decision to take part (or not) in the screening program. These concerns were decoupled with...
regards to women from migrant backgrounds, with lower literacy, or with limited access to a family doctor. Some interviewees were concerned with the increase of anxiety and the availability of resources to address women’s psychosocial needs. Equity was addressed from the point of view of inter-regional access to scarce genetic services (e.g. counseling, laboratories). The solutions proposed to address these challenges include effective communication tools, telemedicine for genetic counseling; devolving more responsibilities to nurses; healthcare staff training; and leverage of expertise within the current screening program. Our findings contribute to the reflection on social implications of genomics technologies.

Queering Quality: How Data About Patients’ Gender and Sexuality Shapes HIV/AIDS Care in Atlanta

Stephen Molldrem, The University of Michigan

In this paper, I argue that Quality Management (QM) and Quality Improvement (QI) processes in the Ryan White HIV/AIDS Program in Atlanta provide insight into emergent uses of Health Information Technology (Health IT) systems and patient-level gender and sexuality data to deliver healthcare to LGBTQ populations. Through an ethnographic examination of QM and QI in the program, I demonstrate how patient-level data about gender and sexuality are being used to address LGBTQ health disparities in novel ways that follow broader developments in LGBTQ health, HIV/AIDS care, and personalized/precision medicine. The Ryan White program is the payer of last resort for medical care for people living with HIV/AIDS. In alignment with the National HIV/AIDS Strategy, Atlanta Ryan White has prioritized eliminating disparities related to sexual orientation, gender, and gender identity. These priorities are pursued through program-wide and site-specific QM and QI processes that measure progress using a variety of clinical data. Agencies collect and report patient data in software called CAREWare. Unlike most other clinical IT systems, CAREWare has long facilitated the collection of transgender-inclusive gender data and “behavioral risk” data (e.g. “men who have sex with men”). Agencies also use electronic health record systems (EHRs), some of which have only recently gained the ability to record sexual orientation and gender identity (SO/GI) demographic data (e.g. “gay”). I explain what uses of data on gender and sexuality in the Atlanta Ryan White program implies for LGBTQ health, Health IT, and biomedicine more broadly.

Chairs:
HUI LUO, National Academy of Innovation Strategy
Zhengfeng Li, Institute of Science, Technology and Society,
Tsinghua University

026. Postphenomenological Research 2: Mediated Spaces

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Dalton

This panel brings together postphenomenological thinking on the experience of the technological mediation of our surroundings. Panelists address both high and low tech, reflecting on the nature of “smart city” ubiquitous big data gathering, the presence of wearable computing, and the “hostile” designs that control public space. The panelists include Stephen Molldrem, with a focus on the role of QM and QI in HIV/AIDS care; Hui Luo, who explores the implications of social justice in technologization; and Zhengfeng Li, who examines the role of technology in shaping LGBTQ health.

Participants:
On Hostile Architecture: The Inscription of Discriminatory Agendas into Public-Space Artifacts
Robert Rosenberger, Georgia Institute of Technology

Although not always noticeable, public spaces are rife with devices that attempt to control the behavior of particular groups: metal nubs on ledges deter skateboarders; high-pitched noise speakers deter loitering youths; cameras force people to watch what they are doing. Within the nascent study of this topic there are a variety of terms to point to those kinds of public-space designs, including “hostile architecture,” “defensive architecture,” and “disciplinary design,” among several other descriptions like “crueul” and “unkind.” With a combination of notions from postphenomenology and actor-network theory, I develop a theory of hostile design. In particular I bring together Don Ihde’s notion of “multistability” and Madeleine’s Akkric’s conception of “material inscription.” I argue that together these ideas can capture some of what occurs when a more powerful social group redesigns objects in order to foreclose upon particular potential uses. I am especially interested in exposing and critically analyzing examples of hostile design with a social justice component, for example fire hydrants locked down to prevent poor neighborhoods from accessing them during heat waves, and public restrooms designed to police particular forms of sexuality. As a touchstone, I will review the main case in my line of investigation: the critique of anti-homeless design.

Technological Environmentality: Bringing Back the World into Human-Technology Relations
Margoth González Woge, Department of Philosophy, University of Twente

Homes, offices, schools, parks, and cities have never been a neutral background in the process of our becoming: we have created these supportive environments, but they have created us too. The long-evolved trajectory of shelters and place-making has shaped our agency and the experiential process of sense making in intimate (and mostly taken for granted) ways. Nowadays the technological texture of these environments is changing. The Internet of Things (IoT) and Ambient Intelligence (AmI) are a variety of terms to point to those kinds of public-space hostile designs, including fire hydrants, cameras, and access to heat waves, and public restrooms designed to police particular forms of sexuality. As a touchstone, I will review the main case in my line of investigation: the critique of anti-homeless design.

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Making sense of “smart houses”: Towards the ontology of the future
Sören Rits, Roskilde University

Key to the idea of “smart houses” and the Internet of things is the integration of various sensor-technologies into things. These sensors are interconnected mediators that will increasingly define and help regulate the world we are living in. In this presentation I will unfold the underlying larger concern pertaining to this physical web, which has to do with how ontology transforms in the age of the Internet of things. The presentation deals with some of the grander visions driving the internet of things and stipulates ways in which ontology is likely to be revisited and revived in the near future. The paper is based on a postphenomenological framework, in order to show what these mediation technologies can do and sense when they operate in and create so-called “smart houses.” In view of this case I will proceed to offer an assessment of how smart houses experience their in- and exteriors and thereby try to articulate a response to the question: “How it is like to be a house?”.

Wearable computers, transparency and the gaze of others
Nicola
Durable Problems, Parasitic Technologies, and Capital

relationships, and power disparities become privileged and durable. These
restoring to ideal forms of it? Through these three papers, we offer a
stabilize and, at times, intensify the problem (for this we turn to anti-bias
in response to these problems and how they metastasize (in the case of
Indian Election Commission), how standardized programs are established
them” (Veyne 1997). How can we present a story of power without
political conflicts to higher order supra-concepts such as “ideology” or
practice-based empiricism, while refusing to defer the question of durable
programs are then maintained through a parasitic relationship to the
technically rationalized (in the case of electronic voting machines and the

Chair:
Don Ihde, Stony Brook University

027. Durable Problems, Parasitic Technologies, and Capital
Extraction: An Exercise in Accounting for Amplification
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Exeter

This panel situates takes up the challenge posed by Fujimura in 1991, who asks "how some human perspectives win over others in the construction of
 technologies and truths..." We pose this as a methodological problem, one
that wants to remain faithful to science studies' attention to processual,
practice-based empiricism, while refusing to defer the question of durable
political conflicts to higher order supra-concepts such as "ideology" or
"isms," which are "apt for idealizing practices while attempting to describe
them" (Veyne 1997). How can we present a story of power without
resorting to ideal forms of it? Through these three papers, we offer a
strategy to track the means through which particular alliances,
relationships, and power disparities become privileged and durable. These
papers come together to form a heuristic device which offers itself as an
analytic tool to recover how power is amplified: how problems become
technically rationalized (in the case of electronic voting machines and the
Indian Election Commission), how standardized programs are established
in response to these problems and how they metastasize (in the case of
Pakistan's speculative housing market and civic services), and how these
programs are then maintained through a parasitic relationship to the
problems they were intended to resolve, thereby offering an incentive to
stabilize and, at times, intensify the problem (for this we turn to anti-bias
training programs adopted by the Chicago Police Department).

Participants:
- Technically Rationalized Problems and Their Solvents: The
Case of Managerial Democracy in India Patrick Jones,
University of Oregon

This paper explores the relationship among electoral technology,
corruption, and the management of the electoral process in India
One of the central mandates of all electoral democracies is to
hold free and fair elections. In India, this mandate is carried out
by a constitutional body called the Election Commission of India.
Since Independence, the ECI has approached its mandate as
essentially a managerial one. In other words, free and fair
elections emerge out of transparent, repeatable, and always
improving processes of administration and management. This
paper argues that motivating this process-oriented approach to
managing elections requires certain forms of problematizations.
This paper considers one such problematization, various forms of
corruption, and the technological interventions designed to
address them. Focusing on three electoral technologies,
electronic voting machines (EVMs), computerized electoral rolls,
and voter ID cards, it sketches the history behind each
technology's introduction into the electoral process. Specifically,
it tracks how concerns about corruption shaped the introduction
of each innovation. The paper then turns to how the innovations
act together to administratively and logistically address
corruption in Indian Elections. Finally, the paper looks at the new
forms of corruption that these technologies are productive of and
the new kinds of interventions that the ECI is proposing to solve
them. Overall, the paper investigates both the way that elections
are rendered a technical problem solved through the use of
particular technologies and the relationship between technical
problematizations and their technological solutions.

Programmatization and Movement: Plots, Speculation, and
Capital in Urban Pakistan Tariq Rahman, University of
California, Irvine

Housing schemes are the quintessential form of urban planning in Pakistan. Following partition from India in 1947, the country was inundated with refugees, and housing them along with the rest of
the population in master-planned residential communities was
seen as key to national development and modernization. Yet, the
state allocated relatively few funds for these projects. Rather,
development authorities were established that would develop housing schemes via the sale of plots, creating a speculative
housing market. Thus, throughout Pakistan’s major cities,
housing schemes developed as early as the 1990s remain almost
entirely vacant. The plots are sold, but they belong to
professional speculators, functioning as speculative assets rather
than consumable goods. If a plot ever does reach a genuine
buyer, it will change ownership several times and rise
dramatically in price before doing so, barring all but the most
well-off in society from obtaining it. The urban poor are
therefore left to build informal settlements on land that they do
not own, in the ever-decreasing space between numerous state
and privately developed housing schemes. It is estimated that
there are well over 2,000 such settlements in the country housing
30-40 million people, or nearly a quarter of Pakistan’s citizens.

In this paper, I explore how efforts to resolve housing scarcity in
Pakistan exacerbate the very problem through a model of
privatization.

Viral Programming and the Reproduction of Problems:
Deferred Racial Reform through Anti-Bias Training in the
Chicago Police Department Sarah T. Hamid, Microsoft
Research New England

The Chicago Police Department’s tactics of racially hostile
policing have been documented well before Chicago’s black
population acquired the technological affordances to make ‘viral’
accounts of police brutality (as in the instance of 17-year-old
Laquan McDonald). Fascinatingly, the study of police brutality
in Chicago is almost as old as the city’s law enforcement force;
as early as 1922, reports have been published almost every
decade that qualitatively and quantitatively establish a pattern
of anti-black violence. Most recently, the Police Accountability
Task Force authored federally commissioned report released
early last year offering data that revealed system-wide bias in
today’s police. The Task Force recommended investing in
predictive tools to assess officers most likely to perpetrate
racially hostile violence — testing for implicit bias. The Implicit
Association Test housed at Harvard’s ProjectImplicit.org was the
product of Greenwald and Banaji’s 1995 study of “implicit bias.”
The IAT measures time difference between a person’s ability to
associate a particular social category with concepts of race or
stereotypes — such as the association of black or white faces with
“good” words (positive valence) and “bad” words (negative
valence). Physiological tools to measure implicit responses to
race are also being deployed, such as Magnetic Resonance
Imaging, patterns of cardiovascular responses, facial
electromyography, and cortisol responses. In this paper, I suggest
that this ‘science of implicit bias’ has rendered the charge of
racism probabilistic, making it less likely that racism is legible to
itself as violence. In the case of Chicago, the ‘implicit-bias’
model becomes a way to capitalize on racially hostile policing as
Encountering Evidence(s): Recasting Participation in Drug Policy Processes Kari Lancaster, UNSW Australia; Alison Ritter, Drug Policy Modelling Program, National Drug and Alcohol Research Centre, University of New South Wa; Rosalyn Diprose, School of Humanities & Languages, University of New South Wales, Sydney, Australia

Evidence-based policy (EBP) is the catch-cry of the drug policy field. However, in practice, policymakers rarely operate in line with the EBP paradigm in this politicised domain. The relationship between evidence and policy has become a key question for drug policy researchers. A body of scholarship has challenged the premise of the EBP paradigm, drawing on poststructuralist and STS theory to highlight the contingent nature of the ‘problems’, ‘subjects’ and ‘objects’ which form the basis of drug policy, including the object of ‘evidence’ itself. At the same time, there have been calls for a democratisation of knowledge in drug policy processes. The consumer participation movement in health policy, along with citizen activism about issues such as supervised injecting facilities, promote the role of local knowledges in policy processes and challenge experts to cede their privileged position. At a time of change in drug policy globally, and rising demands for democratic participation, how might policy processes be recast so as to open up the possibility of ‘encountering’ different evidence(s) and political subjects, in all their emergent forms? Drawing on Stengers’ notions of ‘being at risk’ and ‘cosmopolitics’, this paper will explore how participatory processes might be recast so as to amplify (not silence) frictions and democratise expertise, thus producing robust conditions where scientific knowledge-claims and local knowledges might come together and be remade as a shared reality. In doing so, we aim to develop a new approach to participatory policy processes which takes the entanglement of science and politics as given.

Chair: Sarah T. Hamid, Microsoft Research New England
Discussant: Daniel M. Greene, Microsoft Research

028. Humanitarianism and Development

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Fairfax

Participants:

The Hidden Disaster of Donation Management Rachel Dowty, University of New Haven

This paper uses the 2004 Boxing Day tsunami and Superstorm Sandy to illustrate the hidden disaster of donation management. Relief workers often refer to the process of donation management as the “second disaster.” The sociotechnical systems and classification strategies used to navigate this process too often break down, and yet, fixes rarely succeed in making strides to get what is needed where it needs to go. Those who suddenly lose everything they own depend on well-wishers to donate items for their recovery. In large-scale disasters, well-wishers from far away places see photos and videos of the destruction and give what they see as needed. But what do they give, and why? Through what channels do they depend upon to ensure their donations are put to good use? Through which channels do people receive donations? How are these donations sorted, transported, and dispensed? This research draws from participant observation and discussions with donation management experts, combined with literature reviews, to elucidate cultural and technical problems that give rise to this second disaster, often hidden from those who actually cause it. This research contributes to the growing sub-field of Disaster Science and Technology Studies (DSTS) to better inform and elucidate sociotechnical problems encountered in preparing for, mitigating against, responding to, and recovering from disasters.

Strengthening STS Sensibilities: Taking Co-production to the Humanitarian “Periphery” Katja Lindskov Jacobsen, Copenhagen University

Co-production is an example of an STS-concept with inbuilt attentiveness to the political qua its focus on how the production of scientific order is intertwined with the production of social order. This is not only true locally or nationally, but also globally. With reference to the work of Agarwal & Narain, Jasannoa has for example highlighted how the production of scientific ‘emission facts’ reify existing patterns of global inequality. Despite this sensibility to potentially violent implications of scientific fact-making, co-production remains largely inattentive to how violence may materialize in the production of scientific facts or ‘reliable’ technology. This insensitivity implies a blindness to potentially violent processes of co-production, e.g. as they unfold in ‘real-world laboratories’ in the global periphery. To strengthen co-productionism’s sensibility to potentially violent dimensions of scientific and social order-making, this paper suggests that Jasannoa’s co-productionist idiom can fruitfully be combined with Chamayou’s insights about the production of vile bodies. The paper thus offers a conceptual contribution as well as new empirical insights about co-production’s potentially violent manifestations, as made visible through increased attentiveness to the power dynamics that precede and intertwine with co-productionist processes in real-world laboratories. Specifically, the paper examines refugee biometrics and biometric voter registration as examples of ‘technology trials’ in seemingly peripheral humanitarian and development sites. It shows how the making of reliable technology in these types of ‘laboratories’ have potentially violent consequences that are not reducible to the ‘social ordering’ effects of biometrics after the technology has been constituted as ‘reliable’. Indeed, these co-productionist processes also have potentially violent effects that stem from the intertwined production of humanitarian subjects as vile bodies.

Bridging STS and Innovation Systems Approaches to Knowledge-based Development in Africa: Towards an Endogenous Systems of Innovation Framework Ogundiran Soumouni, University of the Witwatersrand, South Africa

There is a growing body of social science research on the role of innovation in socio-economic development in Africa. However, two main approaches can be identified that sought to be comprehensive, but whose synthesis remains markedly elusive. One approach is the Systems of Innovation (SI) framework, which is becoming increasingly influential in the Global South, and whose insights predominantly provide strategies for upgrading and acquiring technological capabilities from outside sources for the purpose of economic development. Unlike the progenitors of the original framework, however, only a few of these studies have attempted to ground that perspective in Africa’s historical experience, or to critically appraise its social and political context. The other perspective, broadly defined as the Science and Technology Studies (STS) tradition tends to be more critical, and displays a deeper appreciation for Africa’s intellectual heritage. Conversely, STS studies do not typically emphasize the mechanisms that might facilitate a more effective diffusion of innovations that emerge from the indigenous knowledge base. This paper, therefore, provides such a reflection, and offers a theoretical framework that is grounded in the concept of Endogenous Development as advanced by the late, eminent Burkina faso historian, Joseph Ki-Zerbo, in his 1992 book, “La natt des autres”, and combines it with selected analytical tools from the SI approach. The resulting Endogenous Systems of Innovation (ESI) framework is then applied to two Benin-based, innovation award-winning organizations, namely the Songhai Center, which promotes “authentic technology” based on sustainable agro-ecology, and Api-Palu, which encourages “medicinal sovereignty” based on indigenous pharmacology. It is hoped that the findings from the analysis will stimulate lively discussions about how the two component perspectives could be
more fruitfully integrated into a coherent framework.

Chair: Rachel Dowty, University of New Haven

029. (In)Sensibilities of Human and Microbial Lives
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Gardner

Building on the call to read and explore how the world is made differently sensible through multiple discourses and practices of knowledge-making, this panel looks at the site of human engagements with microscopic life. Symbiotic bacteria, yeast, and worms come to be knowable through different discourses, infrastructures, and embodied practices within laboratory technoscience, synthetic biology, craft food production, healthcare, medicine, and more (Latour, 1988; Helmreich, 2009; Paxson, 2013; Calvert and Frow, 2015; Lorimer, 2016). These cultural forms and institutions, situated as they are within complex histories and infused with power, operate through relations of authority and trust, and the knowledges that they produce are contested and contestable. Through human-yeast, human-bacteria, and human-helminth relationships, this panel explores how these relations and contestations enable different kinds of life and lives, and how (re)configuring the techniques and technologies of microbial and human engagements might offer other ways of “getting on together” (Haraway 2016).

Participants:
The synthetically biological morphology of human-yeast relationships Erika Amethyst Szymanski, University of Edinburgh
Saccharomyces cerevisiae – brewer’s or baker’s yeast – is among our longest-standing companion species. Now, bioengineers are reconfiguring human-yeast relationships by treating yeast cells like computers to be reprogrammed, “refactoring” yeast genomes to serve specific human needs, and making “cell factories” or “chassis” onto which functional circuits can be loaded. As practices across conventional fermentation industries and cutting-edge technoscience constantly remake what constitutes “the yeast,” they also remake what the yeast can do, what can be done with the yeast, and what constitutes possible and desirable ways of working in macro-micro-multispecies community. I use interviews of workers on the Saccharomyces cerevisiae 2.0 project and related empirical data to ask: how do these synthetic biologists discursively practice “the yeast?” What roles does/do “the yeast” play in this human scientist-led project to re-engineer the yeast genome? What kinds of trajectories do these modes of configuring the yeast afford for human, yeast, and human-yeast lives in biotechnically mediated futures? Following recent work by Heath Paxson, the “Good Germs” project led by Jamie Lorimer, and Sandor Katz, among others, I particularly look for moments in which yeast make suggestions, resist, control, and contribute. Ultimately, I suggest that various portraits of a popular yeast created through these explorations visualize power distributions across species of humans and yeast in non-deterministic ways and, therefore, create space for alternatives to biotechnical narratives of controlling the microorganism.

Brett’s in the House: Fermenting Value, Care, and Microbial Cultures Andrew Ian Murray, University Of California At Santa Cruz
Yeasts of the genus Saccharomyces (especially S. cerevisiae) are laboratory model organisms and the primary microbes involved in many kinds of fermentative production: beer, wine, (other) ethanol, insulin, and more. Another yeast genus, Brettanomyces, is typically considered a contaminant in both beer and wine worlds. It can find its way into fermentation equipment—on fruits, on flying insects, perhaps even through the air—and, once present, is notoriously difficult to eradicate. However, certain beer styles—particularly “farmhouse” and “wild” ales—owe their characteristic flavors to the presence of these unpredictable microbes, and a growing number of breweries have embraced “Brett,” as they affectionately call it. This embrace is an interesting example of the kinds of “microbiosocial” (see Rabinow 1992; Paxson 2013) relationships that those who craft value with microorganisms develop, as are brewers’ development of and identification with multi-microbe “house cultures.” These and other microbiosocial relationships form in productive industries where the commodification of microbes by other means—like patenting and other forms of proprietarization—are difficult, controversial, or undesirable. Embracing “wildness” and forming relationships with Brett and other unruley microbes—and the ecologies in which and companions with whom they thrive—brings producers, consumers, and microorganisms into new relationships of mutual care and involvement that create more than monetary value. Examining how brewers describe and navigate these relationships, mediated by taste and shared sensory experience, reveals some of the potential and limitations of forms of encounter value (Haraway 2008) that emerge at biocapital’s (Sunder Rajan 2006) limits (Helmreich 2008).

Health Hazard: The Dangerous Proliferation of a Pet Parasite
Sophia Anne Strosberg, University Of Minnesota, Twin Cities
In this paper, I revisit my research on people who use hookworms as a therapeutic for diseases of the gut. However, instead of simply mapping out a human-hookworm assemblage as I did in earlier work, I seek to understand humans and hookworms as part of a dispositif—an “apparatus” of governance that can actually give way to unmanageability. I ask whether the management of the reviled hookworm with anthelmintics, and the management of modern gut inflammation with pharmaceuticals, has transformed into the unmanageability of a human-with-hookworm health hazard. I further ask whether or not this human-hookworm relationship may constitute a form of “care of the self,” by which Foucault means a liberatory method critical self-knowledge alongside others that can sideline biopolitical subjectivities. Finally, I will reconcile this within a loose Spinozian framework.

Fermentation as Metaphor and Praxis for Living Impurely
Stephanie Maroney, University of California, Davis
This paper explores food fermentation to conceptualize relationships among diverse life forms engaged in the shared act of living and dying on this planet. I build on scholarship against purity politics (Shotwell, 2017) and towards the uneasy, contaminated alliances among humans and non-humans, including lactic acid bacteria. Fermentation is a generative metaphor for re-thinking food politics and human entanglements with the natural world (DuPuis, 2016; Bobrow-Strain, 2012). But food fermentation also offers a practice for living with microorganisms—for creating new kinds of value (Paxson, 2008). Drawing from participatory research in a rural queer community in the United States, I demonstrate how food fermentation can be praxis for reassembling our social worlds (Katz, 2003). Observing and collaborating with microbial life via fermented foods offers possibilities for creatively imagining and enacting ways of living impurely.

Chair: Stephanie Maroney, University of California, Davis
Discussant: Amber Benezra, NYU Tandon School of Engineering

030. Innovation, Information and Bureaucracy
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Jefferson

Participants:
Technological Empowerment: A Case Study of the Technology Incubators in Beijing Shih Ming Wu
The aim of this study is to analyze the operation of technology incubators, especially how the major actors in Beijing (China) are represented. The technology incubator is a space that concentrates the knowledge, capitals and entrepreneurs for innovation where the public and government can participate in.
The new landscape of policies has made “technological innovation and entrepreneurship (in Chinese: Shuang-Chuang)” the central concepts of the changing Chinese society. Thus, the roles and relationships of the government, investors, entrepreneurs and workers in the space have changed during the adoption of new policies. However, there is a lack of works of the representation of innovation from the managers of incubators and local authorities’ perspectives that shaped the development of technological activities through social capitals or resources.

The cooperation, negotiation or conflict between the stakeholders inside have also been discussed rarely. Therefore, this study focuses on the process of empowerment of the major actors and how they influence the technological path and technical products within the incubators. This research carried out participant observation, field survey and interviews with the members of the technology incubators, including the managers, entrepreneurs, third-party groups and government. Documents of relevant policies and public opinion on media and social network in China were also reviewed, attempting to reveal the technopolitics behind the incubators, and revisit the theories of social construction of technology.

Innovation on Standby: Political Pitfalls, Economic Uncertainty, and Scientific Frustrations in Local Computer Innovation at Rio de Janeiro’s National Computer Science Laboratory (LNCC) Beatrice Chicago Choi, Northwestern University

While the recent Lava Jato financial crisis and impeachment of ex-president Dilma Rousseff have resulted in widespread repercussions across Brazil, this string of national events has been absorbed with a decolonial view that approaches these events as the latest wave in a series of violent oscillations understood as Brazilian history. Added to this decolonial attitude is a pervasive developmental mindset of what Lauren Berlant calls the “crisis ordinary”, where the state “becomes an emergency responder” and its citizens “experience the state of emergency as an exception but as an embedding in the ordinary”. And while plenty of narratives exist about the “disruptive” success of the Silicon Valley, I find it important to inquire into how other communities continue to innovate in adverse conditions. This paper examines the ways in which Brazilian technological experts have constructed a culture of innovation despite, or because of, such contingencies. In a case study on computer innovation in Brazil, I analyze the National Computer Science Laboratory (LNCC). The LNCC has received media coverage for building South America’s largest supercomputer, “Santos Dumont”, and for its high profile international projects such as “Pampa Azul” which focuses on genetic mapping of the Zika genome. Established in 1980 and located in Petropolis—an old colonial city located on the outskirts of Rio—the LNCC has spearheaded national investments in technological development. In its mission statement, the LNCC upholds “the institutional promotion of computer science and computational modeling in the country, with the formation of a professional scientific sector, [and] the foundation of a scientific society”. Recently, however, due to the LNCC’s most recent, highly publicized budget cutback due to the country’s political and economic crisis, the laboratory has placed a significant number of its project on “stand by”, resulting in immediate technical consequences for the Santos Dumont supercomputer. Augusto Gadelha, the LNCC director, observes “What we did was put [Santos Dumont] on stand by for most of the time, to not disconnect it completely” indicating that the lack of activity and full functionality could provide risks for its cooling system and cause it to malfunction. Utilizing archival and ethnographic methods, this presentation examines the complicated business of scientific innovation in Brazil in crisis mode. The laboratory’s use of open-source software geared towards scientific discovery provides a unique example of national innovation while at the same time presenting a case for how the government continues to support its scientific platforms despite state-wide budget cuts. Alongside ethnographies of work, I also consider unanticipated material complications that emerge at the crossroads of technological performance and economic expectations, and decolonial narratives that address the everyday constraints that local technological experts face to produce knowledge on their own terms.

Comparative Case Studies on Latin American Open Access Infrastructures Luis Ignacio Reyes-Galindo, State University of Campinas - UNICAMP

Though not limited to it, the so-called ‘green’ vs ‘gold’ debate has been central to Open Access discussions in the Global North, focusing on the preferred model to secure long term sustainability between the financial needs of funders, researchers and publishers. National contexts have now given way to a spectrum of preferences for green vs. gold across highly developed nations. Different knowledge dissemination/certification needs in Latin American research communities have nevertheless borne OA infrastructures that supercede the gold/green typology. I will present fieldwork from a Responsible Research and Innovation (RRI) project currently looking at two OA infrastructures in Brazil: the SciELO portal and the Oswaldo Cruz Foundation. I will argue that exploring disciplinary and geo-cultural differences at Latin American sites can revitalize debates about open publishing practices and open science, explicitly contesting Jeffrey Beall’s infamous but widely discussed assertion that Latin American OA has led to a ‘favelisation’ of the region’s knowledge, rendering it invisible and unimportant. Finally, I will describe how the foundation of a new, international, OA, Latin America-centered journal led the editorial team to make important decisions on how to incorporate the OA publishing needs of local academics, whilst also responding to the desire to connect this particular community to a globally standardized scholarly ecosystem.

Chair: Luis Ignacio Reyes-Galindo, State University of Campinas - UNICAMP

031. Limits of "Infrastructure"

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Kent

As George Lakoff reminds us, we understand complex social systems through conceptual metaphors and other linguistic constructions. Within STS and other fields, a predominant metaphor is that of "infrastructure", which is used to describe a variety of systems, regimes and arrangements of phenomena. Steven J. Jackson defines "infrastructure" as the "social and material forms foundational to other kinds of human action," but clearly the concept of "infrastructure", understood both literally and as a metaphor, implies more than that. What are the properties of "infrastructure"? Why has this concept been so generative? What are the limitations to the concept, especially when understood as a metaphor? What blind spots are created by the shared theoretical approaches of STS? For example, do conceptualizations of "infrastructure" presuppose standards as inherited and constitutive of the object of analysis? How do notions of infrastructure open up or foreclose discussions of ethics? The concept of "infrastructure" has allowed STS scholars to extend their work into new domains by characterizing them as socio-technical. Recent work in STS in particular has explored the concept in terms of "knowledge infrastructures." Are there other kinds of infrastructure that either concern us or illustrate the limits of the concept of infrastructure? Research is welcome from all areas of STS. We are particularly interested in papers that explore the relationships between STS and Information Studies.

Participants:

Multiple Infrastructures in the Oil and Gas Industry and the Consequences of Their Interpretative Flexibility Stefania Sardo, BI Norwegian Business School

In studies of socio-technical systems creation and development, standards, classifications, and regulations often exemplify infrastructures, i.e. not visible frameworks upon which other activities are based (Mayntz, 1988; Bowker, 1994; Star and Ruhleder, 1996; Bowker and Star, 1999; Edwards, 2003; Jackson and Barbrow, 2015), that constrain progress along incremental
Infrastructural Incommensurabilities: Ethics and Policy within Mending the Gap: An Investigation into Wheelchair Users’ thereby providing insights into the paradoxical nature of and modified. Information were gathered through semi-structured stop being considered as infrastructures and instead are debated infrastructure allow doing, how and when certain components component assumes an infrastructuring attribute, what does an (Latour, 1991), as they help revealing for whom and when a interaction with and shaping of the transport network. This thesis infrastructural stabilisation that occurred in a period of social faced by wheelchair users in transport are the result of has two main arguments. The first contends that the barriers do wheelchair users use public transport in London?” This paper argument, are indeed consequences of local arrangements, difficult to predict in advance, and they do not necessarily affect the whole socio-technical system. Key concepts for the analysis are interpretative flexibility (Bijker, 1987) and relational durability (Latour, 1991), as they help revealing for whom and when a component assumes an infrastructuring attribute, what does an infrastructure allow doing, how and when certain components stop being considered as infrastructures and instead are debated and modified. Information were gathered through semi structured interviews conducted between 2016 and 2017 with different organizations, among which researchers, drilling contractors, equipment manufacturers, public authorities, industrial associations and certification bodies.

Mending the Gap: An Investigation into Wheelchair Users’ Shaping of London Public Transport Raquel Velho, University College London Public transport in London is a massive infrastructure, with over 400km of underground tracks and a rich, 153-year history that has turned it into a symbol of the English capital. Despite its size, accessibility in this infrastructure has been a common concern for wheelchair users in London. Based on interpretative analysis of thirty-four in-depth qualitative interviews with wheelchair users and policy-makers, observations of training courses and documentary data on London transport, this research asks, “How do wheelchair users use public transport in London?” This paper has two main arguments. The first contends that the barriers faced by wheelchair users in transport are the result of infrastructural stabilisation that occurred in a period of social segregation (1850s-1950s). The second argument holds that, despite segregation, wheelchair users have taken an active role in the process of shaping transport in London. In this role, they have developed inclusion mechanisms on both micro- and macro-scales, through individual problem-solving on the one hand and collective and political activism on the other. Drawing from STS concepts and disability studies, this presentation shows the impact of marginalised users’ engagement. It concludes that the social perception of disabled users as ‘passive’ masks an active interaction with and shaping of the transport network. This thesis therefore provides insights into the paradoxical nature of infrastructure, showing places of agency where previously one saw passivity and exclusion.

Infrastructural Incommensurabilities: Ethics and Policy within Institutional Arrangements Stacy Wood, University of California Los Angeles The infrastructure of classified information challenges generalized notions of infrastructural invisibility, as it is aggressively visible. Classified information infrastructure must be visible, as its structures must simultaneously support and justify its attendant activities. The rise of increasingly interconnected global communications infrastructure has made more complex the sustained ownership of public classified records as they become a source of new market and capital and as their creation is increasingly embedded within corporate networks and devices. Studying the infrastructure of classified information cracks open new questions that studying their content cannot, allowing for an analysis of government secrecy and power that privileges system rather than incident. Additionally, conceiving of classified information as a system allows us to ask questions about the challenges presented by new technologies, sluggish policy development and wide gaps in information literacy. Such challenges not only form our current context but also should prompt us rethink strategies for long-term preservation and access as well as strategizing about how current infrastructure can either support or undermine long-term transparency and the historical record. Engaging theoretical contributions and challenges from both STS and Information Studies, this paper analyzes the ethical implications of infrastructure that contains competing institutional commitments and incommensurable temporal registers within the context of classified information by focusing on the development of the DMCC-S, mobile phones capable of transmitting “Secret” information.

Designing at and Against the Limits of Information Infrastructure Lindsay Poirier, Rensselaer Polytechnic Institute Recent literature in Science and Technology Studies and Information Studies has called on researchers to examine the values and assumptions that orient the design of information infrastructures, along with the knowledge work that they afford. In this talk, I examine the design of the standards and protocols that enable a “Semantic Web” as one such information infrastructure; the Semantic Web aims to add machine-readable “meaning” to Web data, making it easier for computers to find, link, and interpret data on the World Wide Web. Based on ethnographic work on the community of researchers designing the Semantic Web, I argue that the design of base infrastructures, or the infrastructures on top of which designers build new information infrastructures, imposes limits on design practice. While many in the Semantic Web community have aimed to design data ontologies that consistently and precisely order Web information, the Web itself is a messy, decentralized architecture. This has meant that many in the Semantic Web community have had to work within or against the limits that the Web, as a base information infrastructure, imposes. This has resulted in the design of “scrutifier” ontologies; many Semantic Web practitioners have come to accept that user error and “misuse” of carefully defined schemas is inevitable on the Web. Understanding how base infrastructures afford and constrain the design of new information infrastructures, as well as how designers both compromise and/or engage such limits “deviously,” may provide better characterizations of what makes information infrastructures different, why infrastructures tend to “converge” with dominant representations of the world, and how practitioners are working at and against limits. Through such characterizations, information infrastructure studies could illustrate how the design of infrastructures are not only influenced by values and assumptions that designers bring to their practice but also by cultures of design that evolve through engagement with infrastructural limits.

Decay, Compost, Textures, Containers: Infrastructure’s Constitutive Outsides Scout Calvert Infrastructure implies hardness, permanence, and stability, the qualities of things that are “built.” It is figured as enabling and facilitating. From surveying land in order to open it to settlement, development, and resource extraction, to connecting information networks to in order to mine and generate new knowledge,
infrastructures also enable what Sofoulis and Haraway call the “resourcing” of the world, with implications for dispossession and environmental catastrophe. While infrastructure’s most insightful theorists and chroniclers have kept the political dimensions of infrastructure embedded in empirical descriptions of it, power and politics have easily slipped through many analyses. Infrastructure studies, like information studies, retain an element of technological determinism: if only we can describe inadequate infrastructures, then we can fix them or build better. But what happens when information infrastructure is sabotaged directly or allowed to decay through neglect? What are the implications of the deconstruction of the administrative state and support for knowledge infrastructures? Given the power-ladenness of knowledge practices, what Bowker and Star call the “nightmare texture” that emerges when lives are “torqued” by information systems, how do we theorize what might happen as infrastructure recedes, breaks down, and decays? How do we think about organic processes, human and non-human interventions, and work practices in the constitutive outsides or interstices of infrastructure? While infrastructure has been a useful concept for addressing power and injustice in technical systems, this paper aims to push the metaphor to its breaking point to make space for new and renewed metaphors.

Chairs: Robert Montoya, University of California, Los Angeles
Gregory Leazer, UCLA

032. Coffee Break
Break
3:30 to 4:00 pm
Sheraton Boston: Foyer

033. Managing Disaster
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon A

Participants:
Expert-Expert Gap? A Study of Heterogeneity in Risk
Perceptions among Nuclear Experts and Its Implications for
Risk Governance Bitta Lee, Korea Advanced Institute of
Science and Technology (KAIST); So Young Kim, KAIST

Many decisions on technically complex issues such as nuclear energy are based on the judgment of experts, with the facts that the public believes as true often being simply experts’ opinion. Such high dependence on scientific experts in risk governance means that the perceptions and opinions of scientific experts - often accepted as facts by non-scientists - are critical in the decision-making process. In this regard, it is crucially important to understand how facts are socially constructed among the experts. This study explores heterogeneity in risk perceptions and consensus making process among nuclear experts in South Korea. With the catastrophic nuclear accidents of the last few decades (most recently the 2011 Fukushima accident), risk governance has become a focal point in nuclear policymaking. The South Korean nuclear expert community provides a strategic research site in many ways. As a major nuclear energy country with the geopolitical concerns with the fuel cycle issue, South Korea has long seen its nuclear engineers and scientists grappling with the problem of nuclear risk communication. In the course of handling multiple risk issues such as nuclear safety, security, and even nonproliferation, South Korean nuclear experts have developed nuanced positions on specific policy decisions rather than making a unified pro-nuclear voice. Based on the in-depth interviews of nuclear experts in government research institutes, universities, the nuclear industry, and the relevant ministries as well as the archival analysis of key policy documents, we uncover the diversity of expert views towards the degree of nuclear risks and the political and technical feasibility of managing them. One of the contributions of this study is to appreciate the tensions within the expert community and thereby help to design a better interface – whether institutions or policies – for the governance of knowledge as well as for knowledge in governance.

Making Uranium (In)Visible: the Technopolitics of Biomonitoring in the "Grants Uranium District" Thomas De Pree, Rensselaer Polytechnic Institute

Between the 1940s and 1990s, New Mexico became the primary production site for one of the world’s largest single nuclear arsenals, which involved the extraction of roughly half of the total uranium ore accumulated by the US federal government (McLemore 2010). Although uranium mining has largely subsided in the state, northwestern New Mexico is littered with the byproducts of such historic production. Mounds of uranium tailings are the visible indicators of this history, which are sedimented throughout the so-called “Grants Uranium District”—an area that encompasses parts of the Navajo Nation (Diné) and Acoma Pueblo (Aacqu), Laguna Pueblo (Kawaik), and primarily white and Hispanic settler communities. By the start of the twenty-first century uranium mining ceased in New Mexico, leaving a legacy of environmental and human health impacts (see Johnston et al 2007). According to anthropologist Joseph Masco, “the cost of cleaning up the Cold War nuclear complex ranged from $100 to $380 billion at the end of the Cold War, and the DOE was forced to admit that some sites were beyond environmental remediation given current technology, and were, thus, de facto national sacrifice zones” (2006:221). This paper draws on three months of multisited ethnographic research in northwestern New Mexico, where I participated as a “graduate-student researcher” at the Santa Fe-based Multicultural Alliance for a Safe Environment (MASE), a regional environmental advocacy group that coordinates the efforts of five local grassroots groups. This paper describes how MASE and colleagues critique “corporate science” (Kirsch 2014) and use environmental monitoring science and technology to achieve political goals.

Governing Disasters through Telecommunication: The Safe-Net Project and Post-disaster Policy in South Korea Sungewn Kim, Korea Advanced Institute of Science and Technology (KAIST)

Telecommunications infrastructure is rarely just a medium for electrical signals, but more a conduit of a collective vision shared by its developers. In this paper, I examine the South Korean case of Safe-Net to show how the infrastructure embodies and reproduces the nation’s dominant vision of centralized disaster communication. Safe-Net was proposed after the tragic sinking of Sewol ferry in 2014 as a nationwide telecommunication infrastructure that connects 300,000 safety-related personnel from various agencies: police, fire department, medical facilities, army, and local governments. By connecting every single first responder with commanders at a distant control room, Safe-Net would allow the central government to have total control over frontline workers and thereby govern the future possibilities of disasters. During the construction of the Safe-Net, however, this grand sociotechnical imagination was constantly challenged as the network’s totalistic design cause unexpected tensions with the actualities of disaster management. Safe-Net couldn’t serve diverse needs from different institutions, easily broke down upon extreme physical conditions, and ignored organizational hierarchy in emergency communications. This conflict between the ideal design and the actual deployment deepened as local actors were left out of the major decision process. Unboxing the politics embedded in this infrastructure, I suggest that the telecommunication policy for disaster management should be more attentive to material environments and invisible labors, in a way to fully conceptualize the multifaceted relationship between the central and the local, the government and the governed, and disaster politics and disaster policies.

How Do We Know Failure? Dawn Goodwin

This paper examines how “failure” comes to be recognised in the context of UK healthcare. ‘Scandals’ and their related inquiries have repeatedly found ‘culture’ to be the cause of healthcare failures and shown different ways it causes harm. At Bristol
Royal Infirmary, a ‘club culture’ existed with too much power in the hands of a few, at Stafford Hospital there was ‘an insidious negative culture’ with tolerance of poor standards and indifference to suffering, and at Furness General Hospital, ‘dysfunctional working relations’ characterised interactions between practitioners, and midwives zealously pursued the ideology of ‘natural’ childbirth. However, for the practitioners involved, the normalising effects of ‘culture’ potentially render imperfect but acceptable care indistinguishable from unacceptable care. How then do we recognise when the prevailing standards of practice are inadequate? Often, warning signs of harm are evident yet their significance is disregarded. Drawing on the three cases above, I explore what voices are heard, in what circumstances, and the authority they carry. Mortality statistics served surveillance purposes yet were unstable and easily disputed, harm was remade as ‘risk management’ through governance procedures that might have detected harm but instead were employed to control and contain ‘scandal’, so that ultimately it required whistleblowers, public outcry and sustained media attention for admissions of failure to be made. Thus, I examine the knowledge making practices around failure, and the differential capacities of non-humans (statistics), individuals (whistleblowers) and collectives (pressure groups, the press and the evidence they marshal) to make harm, not only perceptible, but undeniable.

Chair: Dawn Goodwin

034. Decolonial STS: Views from South Asia

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon B

How might some of the dominant positions, methods and theoretical instantiations of STS be rethought in light of South Asian materials, and specifically, from a decolonial perspective? For the purposes of this panel, decolonization refers to an array of historiographical, methodological and specifically, from a decolonial perspective? For the purposes of this panel, decolonization refers to an array of historiographical, methodological and philosophical efforts to rethink science in South Asia on its own terms, broadly construed. In light of the disparate spaces and scales across which scientific practice is enacted and knowledge produced, our aims are to 1.) elaborate new concepts and methods for understanding sites of scientific activity, 2.) consider how an examination of certain themes central to South Asian Studies - such as nationalism, regionalism and belonging, gift, exchange and kinship, the colonial and postcolonial, the public sphere, caste and gender, and the subaltern - might contribute to and offer a kind of naive objectivity, I ask how we might rethink both the ethics and politics of fact and rumor in light of these distinctively postcolonial materials.

Decolonizing the organic psyche: Revising maps of "global medicine" with mid-20th century Indian psychiatry Sarah Pinto, Tufts University

A particular map underlies certain approaches to what is called "global medicine" and "transcultural psychiatry," particularly those that highlight cultural difference in medical encounters and dominate contemporary popular understandings. With origins in colonial medical projects oriented around contests of knowing, diagnosing, and translation, this map imagines organic and material systems defined in symbolic terms and by non-material (or alternately material) therapeutics. 20th century Indian psychiatry tells a different story, however, underscoring the role of materiality in visions of psyche, personhood, affliction, and healing in forms explicitly articulated as non-western but not non-scientific, Indian but also universal, that is, not translational from or into another idiom. Considering the work - published and clinical - of Dev Satyanand, V.K. Govindaswamy, and other figures of mid-20th century psychiatry, this paper asks whether and how an appreciation of Indian psychiatry's theories of the organic psyche might go some way toward decolonizing received and scholarly understandings of what is at stake in medicine imagined as a cultural encounter.

Making Postcolonial Bodies: The Biopolitics of Hindu Nationalism Banu Subramaniam, University of Massachusetts Amherst

This paper explores how science and religion come together in contemporary Hindu nationalism to create a very particular and powerful biopolitical imaginary. Religious nationalists have selectively, and strategically, used rhetoric from both science and Hinduism, modernity and orthodoxy, western and eastern thought to build a powerful but potentially dangerous vision of a Hindu nation. With aspirations for a global and modern Hindutva, scientific and religious practices in contemporary India are inextricably interconnected and result in fluid processes and practices of both institutions. The case of India reminds us about both the transnational stakes of science as well as the local instantiations that challenge enlightenment narratives of reason.
and unreason. Ultimately to understand contemporary techniques in India, we need new epistemological and methodological tools, and story-making practices to make visible the many phantasmasgic natural and cultural worlds within.

Transfused Kin, Transplanted Citizens: Scenes of Embodied Activism in Contemporary India Dwaipayan Banerjee, MIT
Concepts such as 'biological citizenship', 'biosociality' and most broadly, 'biopolitics' have emerged from a rigorous engagement with the political history of Europe and the United States. The grids of legibility they present in describing the relationship between state institutions and civil society obscure more than reveal the relation between science, technology and political economy in postcolonial contexts. I present here a new project (in collaboration with Jacob Copeman) on embodied activism in North India that aims to begin to decolonize STS understandings of the relationship between bodies, activism and politics. Specifically, we describe scenes of activist critique in contemporary India that find their logic in the transplantation or transfusion of biological substances. We present cases where such transactions serve as acts of protest against the denial of citizenship rights, or to highlight deficits in contemporary kinship relations. We argue that such forms of embodied activism have become particularly powerful because they emerge within, as well as against the grain of, regionally embedded social hierarchies that guard the flows of bodily substance. Rather than take concepts such as 'biosociality' and 'biopolitics' for granted, we plot the gifting, transaction and flow of biological substances as they engage and reconfigure regional political forms. We argue finally that the social forms that emerge around the body in North India run counter to the assumptions of contemporary STS concepts about civil society.

Chair:
Sarah Pinto, Tufts University
Discussant:
Projit Mukharji, University of Pennsylvania

035. The Poetics of Denial: Knowledge-Making and Expertise in a “Post-Fact” Era II
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon D
If pundits are to be believed, we are living in a “post-fact” era—a moment when science and expertise are being thoroughly unsettled. Following the contentious Brexit referendum and the divisive U.S. presidential election, in which “lies” urged but often outstripped “fact checks,” there has been renewed emphasis on personal belief over extrinsic evidence, on individual experience over scientific consensus. Though these are by no means new developments (STS scholars have long interrogated the conservative distrust of intellectualism, for example), today’s poll worlds seem to invite more boastful denial than their predecessors. In this context, this panel aims to explore the poetics and consequences of such denial. Focusing on processes of knowledge production, inscription, translation, and occlusion, of wordplay and rhetorical evasion, we consider the style of so-called political assaults on scientific sense-making. What techniques are being used, among counterculture, citizen scientists, and lay audiences, to undercut traditionally expert knowledge? What forms of thinking, knowing, and imagining are offered in their place? What are the technologies of perception that render science politically (in)sensitive, that destabilize its authority, that strategically—even mockingly—‘defang’ it? And in this process of unsettling, what role does “common sense” play?
This panel invites scholars working on examples of contested knowledge—from climate change and energy to toxicity, pollution, and forensic science—to reflect on these questions while also considering the status of “denial” within the humanities. As scholars studying science, expertise, and policy, how is our own sense-making bound up in these debates?
Participants:
“‘It’s Like an Air Filter’: Alternative Facts on Waste Incineration Chloe Ahmann, George Washington University
Waste-to-energy technology (WtE), which generates electricity through trash incineration, has long been in decline in the United States. Since a surge of grassroots activism in the 1980s drew attention to its environmental impacts, WtE has been blighted by its “dirty” reputation. But the past few years have seen a shift: the first new facility to go on line in several decades recently opened in Florida, and other plant proposals tout the technology as an environmental boon—a source of clean, green, renewable energy made from stuff we would otherwise throw away. In short, there is a new common sense forming around waste incineration. Where can we look to understand this change? Focusing on a plant proposed in Baltimore, this paper explores the construction of “alternative facts” (to borrow a term from Kellyanne Conway) used to package the technology as green, and to secure the politically and economically advantageous label of “renewable” for waste incineration. Specifically, it explores three rhetorical strategies through which proponents of WtE direct attention away from the technology’s environmental impacts—through recourse to the subjunctive mood, through polysemy, and through acts of abstraction and isolation. The paper also considers a grassroots campaign against the Baltimore plant that has found itself having to fact-check industry claims. In an environment (and, indeed, a political milieu) where those marshaling alternative facts boldly seek to undermine scientific authority about pollution and climate change, what does it take to establish a new common sense, and how can counter-expertise defang it?

"Somebody Has to Stand Up to Experts": Classifying Authority in Texas Curriculum Controversies Christopher Robertson, Northwestern University
The long history of right-wing mobilization against the ideas and institutions of academic elites is well documented, as are public controversies about science and expertise. Battles over the content of K-12 public school curriculum, for example, have been framed as both “culture wars” and “boundary struggles” for moral and epistemic authority. Surprisingly few studies, however, have systematically analyzed the decision-making practices of partisans as they construct the curriculum standards that often make headlines. This lacuna is even more visible in the era of so-called “post-truth” politics. Drawing on comparative analysis of audio/video recordings from the 2009 and 2010 Texas State Board of Education science and social studies curriculum adoptions, this study addresses the following questions: How do non-expert elected officials tasked with revising and adopting new statewide curriculum standards decide what information students should be required to learn? How do they value and evaluate the educational relevance and scholarly importance of a wide range of knowledge spanning the natural sciences, social sciences, and humanities? How do these (e)valuators determine credible sources, who has epistemic authority, and what a legitimate claim is? I find that board members classify arguments using six epistemic and moral (e)valuative styles during the adoption process, often in ways that problematize popular narratives about how conservatives “challenge” and liberals “defend” the scholarly status quo. Addressing these questions would be valuable on its own as a window into a neglected context of social knowledge making. But examining these questions in ideologically polarized settings yields additional benefits, such as a deeper understanding of the relationship between evaluation practices in micro-interactions and macro-concerns about how different “epistemic cultures” construct identities and organize politically around widely (and wildly) ranging beliefs regarding what is true or false, real or fake, right or wrong – and how people know the difference. There may be no such thing as “alternative facts,” but there are certainly “fact-like” alternatives. The goal of this paper is to understand how fifteen members of the Texas State Board of Education determined one from the other.

Conservatism and Counter-Revolution: Fringe Science as Reaction Andrew Bartlett, University of Sheffield
What is the ‘model of science’ to be found in communities of fringe science? Which virtues are held to determine good science? How do these communities position themselves with
Engaging with Data: Making Sense of Data

How data-driven technologies are imbued with political, strategic and economic interests that impact the ways in which information can be used. While critical studies of data, algorithms, software, code and platforms aim at gaining a reflexive understanding of our contemporary media/technological condition, others ask how to make use of the available data and computational processes in the humanities and in intervention science scholarship. In the area of digital methods, traditional methods are rethought and new methodological approaches are developed which bring forth tools and new approaches to research new sites. In this panel, we would like to push the discussions further into how we can change, improve and invent methodological approaches for critical inquiries when working with digital data. Possible questions include: How can digital methods be used for critical analysis of data-driven technologies? How can we critically reflect upon analysis tools and their ontological consequences for social science research and critical data studies? What does the role of tinkering with (research) data play when we're considering methodological aspects of data? We aim at sharing experiences/approaches/ideas, and creating a space for reflexive discussions.

Participants:

Big Capta and the Digital Sensorium Jeremy Hunsinger, Wilfrid Laurier University

Sensors are taking information from our world. Capta is the outcome of the medium of the digital sensorium, not data. Data is that which is given, usually long after the sensors capture it, instead what we have in our new smart cities and new smart ruralities is streams of capta that are coming together to be transformed into new mediations of our lives. The distinction between capta and data is significant here because as much as we are capturing from the world, we are actually capturing from ourselves. In this capturing of capta, we constitute new quasobjects which contain elements of the traces of both human and non-human in their constitution. As we compile more and more of this transient capta into permanent representations and through the processes of institutionalization and administrative/statist science, we transform the quasobject capta into the objectified data, losing the subjective and nomadic elements that empowers it. The new digital sensorium is the application of sensors into our technoscientific and everyday lives both in and outside of the workplaces. It is the consistent capturing of our traces and our remixings with our world into a system of relations deeply mediated by sensing things, such as the Internet of Things. This paper engages the digital sensorium and tries to clarify some of the ontological processes occurring in our lives in relation to the categories of capta and data, thus providing new insights for STS to engage with the changes of policy required to manages the digital sensorium.

The Widening Gyre of Data Infrastructure Development

Michael Hockenhull, IT University of Copenhagen

This paper explores a new experimental method, the data sprint, and argues that it lies at the cross-section of digital methods and critical data studies. We argue that data sprints are a potential site for strengthening and foregrounding the critical sensibilities of digital methods and data work in general, exploring tinkering with data and involving practitioners in these reflections. The data sprint is a novel digital method that has been under development at multiple universities in Europe for the last several years, and is inspired by forms of collaborative programming work such as the ‘hackathon’. Typically performed by a group of digital methods researchers together with so-called ‘issue-experts’, the data sprint is a rapid way of exploring data available on a given issue or topic and producing visualisations, stories and findings about it. It makes use of existing digital methods tools, but also requires lots of tinkering and rapid prototyping to work successfully. Based on empirical material and experience from numerous data sprints, the paper explores the case for data sprints as a productive and interventionist critical digital method. The process of a data sprint, from ideation to findings, brings to the foreground the constant decisions and iterations – tinkering – made in data work with regards to selection, collection, cleaning, analysis and visualisation, and the workconsequences of these. Data sprints thus allow for researchers to make evident to the involved practitioners and issue-experts the complexities of working with data, whilst also being able to conduct digital methods research in the process.

Recovering the Data Sublime Gabby Resch, University of...
The Epistemic Structure of Climate Science: Examining
molecular biology, climate scientists have a unified purpose: to
science has no institutions such as CERN coordinating
communitarianism and individualism. Unlike physics, climate
biology”. Climate science lies between these poles of
with the individual, bodily, lab-bench science of molecular
Knorr Cetina compares “the communitarian science of physics
implications of that structure for knowledge production. Karin
researchers. Instead, climate scientists are organized in relatively
predict the future of the climate. In grant proposals, for example,
data visualization always be sensible? How might we re-introduce forms of
ambiguity and playfulness (similar to what Moshon Zer-Aviv has
termed reambiguation) into data interpretation? In this paper, I
will discuss my own tinkering in the space of data visualization,
drawing on specific cases in which I’ve created immersive data
landscapes in virtual reality, as well as tangible 3D
rematerializations, for visualizing gestural and biometric data.

The Epistemic Structure of Climate Science: Examining Cooperation Through Citation Networks Mike Thicke
I examine the epistemic structure of climate science, and discuss implications of that structure for knowledge production. Karin Knorr Cetina compares “the communitarian science of physics with the individual, bodily, lab-bench science of molecular biology”. Climate science lies between these poles of communitarianism and individualism. Unlike physics, climate science has no institutions such as CERN coordinating researchers. Instead, climate scientists are organized in relatively small groups much like molecular biologists. But unlike molecular biology, climate scientists have a unified purpose: to predict the future of the climate. In grant proposals, for example, climate scientists of various disciplines regularly link their research to the goals of the IPCC. Absent centralized direction, how do scientists cooperate? One suggestion is that scientists coordinate their activities through citation: in pursuit of citations scientists produce work useful to others. The pursuit of citations has become more prominent in recent years as metrics such as the h-index are used to in hiring and promotion decisions. However, it is hard to tell how effective such measures are at coordinating research. I will present research gathered from citation mapping to examine how connected climate science is---can we see how knowledge flows in climate science by examining citations? If citation networks do show strong connections between climate science disciplines there is reason to believe that citations and metrics such as the h-index are effective at coordinating research activity. If they don’t, there is reason to be skeptical that such measures really are effective at promoting cooperation.

A Pragmatic Theory of Social AI Anja Bechmann, University of California, Irvine & Aarhus University
Social AI are machine learning models used to create meaningful predictions and subsequent actions based on social media data and such models are becoming important engines of the data-driven society. Social AI automate what kind of news is being presented to what kind of people and the algorithms automate how people are depicted through social data. We recently saw how Facebook’s algorithm was blamed for the election of the U.S. president Donald Trump, especially emphasizing the lack of ability to detect misinformation and specifically scanning for the circulation of propaganda. Facebook’s algorithm has also been blamed for creating isolated content-segments in which agreement becomes the norm, thereby moving away from a pragmatic understanding of participation (Dewey, 1927). We also have accounts of how Social AI have been used to wrongly predict terrorist actions of individuals or to create discriminating divides (Sweeney, 2013). Despite these accounts the government now explicitly ask non-citizens to provide access to social media data when entering the United States. This paper will critically scrutinize and discuss to what extent Social AI are able to create meaningful predictions that are sustainable both to our understanding of the social human being and to society. Through case studies of empirical uses of different AI models on social media data in our lab, and a historical account of central AI problems, the project proposes a pragmatic theory of social AI. The emphasis is on contextualizing data as depictions of the human in which classifiers and training data and navigating conflicting ambiguity play central roles (Bowker, 2014; Bowker & Star, 1999; Star, 1991). The paper proposes that making visible political dimensions of model training, reasoning and the connected interpretive work flows are together with a close eye for knowledge that can be derived from outliers and policies for adjusting for discriminatory patterns, important steps that need to be taken in order to advance the further developing of Social AI and to avoid systematic discrimination.

Chair: Marcus Burkhardt, Technical University Munich

037. Craft as Practices of Knowledge Making
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon F
Craft and craftsmanship have received renewed attention in STS and research on sustainable transitions, i.e. seeing craft as innovation and as “boundary-work” between humans, materiality and policy. This panel wishes to further explore the connection between craft, knowledge and sensibilities; how is the world made sensible through craft and through technology? Professionals and practitioners work with their senses: from carpenters smelling logs to find the best ones to build a house with; musicians hearing what notes to compose; weavers getting the correct touch on their handlooms; baristas tasting their way to coffee-craft perfection; and clockmakers seeing the tiny fragments that composes intricate contraptions, just to name a few. What goes on in the world of craft, where practitioners use their hands, bodies, tactile and sensory apparata to create things? How can STS-researchers understand the embedded and tacit knowledge practitioners inhabit and develop? How are sensibilities of craft contributing to knowledge-making and future-making? The panel welcomes contributions that thematize the practices and processes of craft as knowledge making processes. Of special interest are issues that involve local knowledge, social learning, craftsmanship, transformation of knowledge and technology.

Participants:
Making, Crafting and Human Development: Crafters and Coders Experiences of Digital Fabrication Technologies Cian O'Donovan, University of Sussex; Adrian Smith; W Edward Steinmueller, University of Sussex
Craft's relationship with industrial design, production and manufacturing seems to be coming full circle. Where once craft was the refuge of productive skills lost to industrialisation, recent innovations in distributed digital fabrication technologies have contributed to a rise in small batch production, and a decline or devaluing of the homogenous, mass produced -- indicating new craft relations and sensibilities between designers, producers, consumers and things (Cardoso, 2010). Digital design and fabrication technologies, and their non-industrial use in community settings such as hackerspaces and makerspaces attract considerable attention in this regard and offer a site for empirical research. Enthusiasts celebrate a widening appropriation of tools such CAD/CAM, 3D printers, laser cutters and routers. Yet it is curious how technologies that deskilled machinists and damaged worker communities in the past, are now celebrated as equipping makers with new skills and capabilities. Perhaps the real picture is somewhat ambiguous?

Strong and Precarious Machines: Caring for Ceramic Kilns in Kyoto (Japan). Alice Doublier, Université Paris-Nanterre

In the four years during which they come to experiment with clay, students in the department of ceramics of a private university in Kyoto are given many opportunities to interact with the imposing machines that are electric and gas kilns. They place their artifacts-in-becoming within the empty space of the kiln and let it transform them. Compared to the exhaustive challenge of wood firing students are faced with every summer, this is a beautifully simple task. However, while most students express conspicuous admiration for the autonomous character of electric and gas kilns, an ethnographic attention to the uses of this technology reveals that kilns find themselves at the center of constant care, and that they are actually quite a piece of work too. Drawing on a sixteen-month fieldwork among students in this department, this paper aims at exploring the specifics of this particular human-machine relationship. It provides a fine-grained description of the numerous micro-actions and the long and intense negotiations needed to set up the firing, to load the kiln, and to monitor temperature levels. Kilns reveal themselves to be, in stark contrast to their physical aspect, extremely fragile assemblages, which require a minute and constant care from their users. In the process of their usage, kilns indeed become the object of a multitude of maintenance practices aimed at preventing potential damages and breakdowns caused by threatening exogenous factors and entities, such as excessive humidity, dust or slipping glazes. Interestingly enough, moreover, the care with which students act around kilns seems also to be aimed at keeping people and things together at a level of the department itself. In other words, caring for kilns is also a way of preventing the potential breakdown of precarious human/non-human collectives which use them. Following a path opened by recent research within STS in the field of maintenance and care (e.g. Fernando Dominguez Rubio, Jérôme Denis and David Pontille), this paper thus wishes to show how fragile technological infrastructures might sustain in return the collectives that work to keep them together.

Chasing the Fit: DIY Housing Experiments in the Woodshop
Kristin Dew, University of Washington

In this paper we explore the intersections of the traditional craft construction technique of timber framing and contemporary do-it-yourself (DIY) housing practices to illuminate a building process we describe as “chasing the fit”. During a month-long experimental workshop at a woodworking school in Port Townsend, Washington, we join in home design and ongoing problem solving while timber framing tiny houses alongside fellow students and two master woodworkers. Following the course of building, we locate acts of craft-based resistance and experimentation with dominant ways of doing “the home” in the US. In the woodshop, we see the particular moments in which centuries-old timber framing practices emesh with DIY tiny house construction to reveal alternative modes of measurement, material selection, labor configuration, and spatial and temporal ordering in home fabrication. We unravel how chasing the fit is both an embodied skill and a problem-solving process, a woodworking technique for building durable structures and a method of home building that involves drawing together careful material arrangements in an ongoing fashion. The knowledge arising from these projects -- knowledge of how to chase the fit -- complicates common distinctions between craft and engineering, amateur DIY work and professional building, mobility and permanence, and individual and collective ownership.

The Creative Machine: Sound, Instruments, and Artificial Intelligence
Lauren Flood, Massachusetts Institute of Technology (MIT)

Over the past decade, the practice of building do-it-yourself projects has been transformed by the global Maker Movement, which purports to revolutionize creativity through a 21st-century twist on the individual development of hands-on technical skills. One underdeveloped facet of this movement is its relationship to sound and music. In this paper, I draw on ethnographic fieldwork in Berlin and Boston (and their transatlantic connections to networks of builders) to explore the role of artificial intelligence in designing experimental musical instruments. My primary field sites are instrument-building workshops; I focus here on rising public interest in those involving AI (especially machine learning) and show how participants teach machines how to play in order to learn more about both technology and each other.

What forms of knowledge are produced when we include the nonhuman as an interactive creative partner? Meanwhile, the DIY obsession with all things "hands-on" elicits questions as to the role of the hands as a central appendage of music making, in friction with an increasingly digital world. Thus, I investigate the cultural significance of instruments embedded with AI, both virtual and physical. Considering the movement’s emphasis on invention and imagining alternate futures, I argue that a defining characteristic of these builders is a fascination with prototypes--of self, sound, and machine. Finally, I engage with debates about the role of the nonhuman in design, craft, and public participation to question how we can employ the machinic "mind" to study instruments that operate beyond the scope of the human condition.

Craft and STS
Roger Andre Søraa, NTNU; Håkon Fyhn, NTNU

Practitioners of craft have throughout human history contributed to the shaping of society. Craftpeople have received modest research attention -- however, they are an important clog in running the wheels of society. Someone needs to create, fix, mend and repair -- perhaps now more than ever -- as climate and waste problems are numerous. In this paper, we look closer at how an STS understanding on the concept of craft can contribute to understanding the complex socio-technical tacit knowledge embedded in craft professions. Through multiple understandings of craft, what it is, what it does, and who does it, we explore hands-on, and bottom-up knowledge making. We approach this seeing the Crafting of Knowledge, building on existing literature on crafting, tacit knowledge, practice theory, and STS insights on how technology is used and domesticated by users. The goal is to add an understanding of craft to the STS body of literature. Our main methodological sources are ethnographic fieldwork and qualitative interviews with craftpeople working in the building industry, but we will also draw comparisons to other types of craft. This will explicitly be connected to the sustainable transition that the modern world is undergoing, towards a greener and more environmental friendly society, asking if the nature of craft is changing -- and what remains through the change? We are arguing that challenges of environmental sustainability shape craft and workmanship, and that the notion of craft can contribute to sustainability studies, as well as STS studies.

Chair: Roger Andre Søraa, NTNU

038. Science, Technology and Sport III
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon G

While sport studies scholars have established sport as a key site of cultural
meanings and social relations, fewer scholars have engaged these issues within technology and science studies frameworks. This panel invites papers broadly concerned with social and cultural inquiry into the intersection of science, technology, and sport. Potential topics include, but are not limited to: sport technologies and technologies of the active body; issues related to medicine, risk and sport; performance enhancement and bioethics; (dis)ability, gender, race, class, and sexuality, technology and sport: sporting labs and scientific practices; representations of science and sport; sport analytics, data visualization, and the quantified self; professional gaming and eSports; and, infrastructure, sustainability, and sport.

Participants:
The Corporate Production of Sport Science in the Age of Obesity
Susan Greenhalgh, Harvard University

Everyone seems to know that exercise and sports are good for weight control and human health, but few have examined how those scientific truths became cultural commonsense. In an age of obesity, when the epidemic’s causes and solutions remain unsettled and exercise is being advanced as the key, unpacking the genealogy of the scientific construction of sport as weight-reducing and health-promoting – who is fostering it, by what means, and for what strategic ends – is an urgent task for science and technology studies. Drawing on STS scholarship on the growing commercialization of science, this paper traces the efforts of the Coca-Cola Company, the world’s largest soda corporation, to scientifically establish increased activity (rather than dietary restriction) as the main answer to the obesity problem – a claim few obesity experts accept. Though Coke has long used its marketing prowess to associate soda consumption with sports and health, extending the health claims for physical activity to obesity became vital in the early 2000s, when the sustained rise in obesity emerged as the single greatest threat to corporate profits. Focusing on 2000-2015, this paper mines company sustainability reports and the annual reports and newsletters of key Coke-affiliated scientific non-profits to historically trace the scientific concepts and claims developed, the ties forged between the company and academic scientists, and the institutional mechanisms by which the science was advanced. This work complicates our understanding of the science in sports STS while contributing to the larger STS project of using critical scholarship to intervene in important issues and questions of our day.

How Does Exercise in Pregnancy ‘Matter’ in the Era of Epigenetics?
Shannon Jette, University of Maryland; Katelyn Esmonde, University Of Maryland College Park

In this paper, and in line with the conference theme of STS (in)se sensibilities, we explore how we might make sense of, and engage with, the growing scientific and public health interest in prenatal exercise as a practice that ‘matters’ to the future health of both mother and child. Our emphasis on ‘matter’ refers to the paradigm shift whereby models that account for the entanglement of the social and material/biological – namely epigenetics and the Developmental Origins of Health and Disease - are pushing aside the static genome. These models seem to offer (scientifically-endorsed) case studies of the intersection of material and social forces that might move us beyond not only genetic determinism but also social determinism, as evidenced by the interest in their theoretical potential by new materialist scholars. This brings us to our question of how, in this context, prenatal exercise ‘matters’? Drawing upon the Cultural Studies theory/method/intervention of articulation and the STS practice/concept of relational materiality, we map out how prenatal exercise currently ‘matters’ in the scientific literature, demonstrating how the social is largely reduced to the mother’s behavior (whether she be fat or human). We then propose an alternative vision that seeks to (re)articulate prenatal exercise as a historical/political/social/material process of becoming and conclude by contemplating how we might translate this view in a way that matters to the scientific and public health community. This presentation contributes to STS scholarship by bringing together the Cultural Studies approach to articulation with Actor-Network Theory as they relate to physical culture.
Crafting Fun: Tinkering, Innovation and Pleasure in the Invention of Mountain Biking
Sarah Rebollos McCullough, University of California San Diego

Mountain bike innovation and framebuilding was part of a larger resurgence of hand-crafted objects that sought to reject the effects of globalization on manufacturing in the US during the 1970s. The “bones” of any bike is the frame, and this presentation explores how early framebuilders hand-built a new skeleton for mountain biking. The success or failure of early frames depended on how well they could accommodate the desires of established riders to go faster, farther, and have more fun. Early mountain bike frame builders sought to embed the potential for a good ride into steel and aluminum. In this process, they also sought to reclaim a particular mode of working class masculinity by developing a product “made in America,” even as globalization pushed manufacturing overseas. While this effort to reclaim craft was marginally successful from an economic perspective, the do-it-yourself ethos survived by fostering pleasure in tinkering with riding machines through the addition of customized componentry and “gear.” This presentation draws upon ethnographic field work conducted with early mountain bike riders and builders in the San Francisco Bay Area and Crested Butte, Colorado, two early hotbeds of off-road riding. This research demonstrates how pleasure in the design of new technologies can become gendered and racialized. While there is much evidence that documents the masculinization of technological innovation, mountain biking histories allow us to consider how the very desire to tinker with everyday objects and its attendant affect of pleasure sits more comfortably in some bodies than others. Fun was, and remains, a structuring principle and value for communities of off-road riders. “We were just having fun,” riders repeated time and again in the course of my fieldwork. Fun had intrinsic value for these riders, and over time also gained immense capital value. This presentation demonstrates how fun was built into the angled metal of a bike frame. A fit body, a quality mountain bike, and a well-made trail all became sites of “craft.” All three needed to be reshaped and communal investments of time, resources, and emotional energy that generated an affective charge around trail riding that also came to exist in the process of building frames.
that the reconfiguration of medical authority and the rise of expert patients demands a critical rethinking of medicalization—its source(s), its effects, and its characteristics. First, I historicize the emergence of the “medicalization” literature using a sociology of knowledge approach; the medicalization framework developed out of a critique of psychiatry in the wake of deinstitutionalization, then only later migrated to become a critique of biomedicine at large. I argue that because of the authority granted to biomedicine in general and to biomarkers in particular, this translation between a criticism directed toward psychiatry, to an explanatory framework for biomedical control, deserves closer inspection. Second, I recontextualize medicalization in a new distribution of medical expertise and authority by tracking the journey of chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) to diagnostic legitimation, presenting preliminary ethnographic data from an ongoing project on the CFS/ME patient movement. Because, at present, CFS/ME has no biomarkers and because patients continue to report being misunderstood by doctors, CFS/ME presents a compelling case of what I term “ambivalent medicalization,” a state in which despite a decades-old professionalized patient movement, CFS/ME remains only incompletely and unevenly medicalized. In articulating the concept of ambivalent medicalization, I consider the possibility that medicalization could more accurately thought of as a fraught, complex, and fundamentally multidirectional process whose political effects cannot necessarily be predetermined. This paper adds to the STS literature by considering medicalization as a process in which the role of expertise, the distributed nature of medical authority, and the embodied dimensions of everyday life are brought into relief. Lupton, Deborah. 2002. “Foucault and the Medicalisation Critique.” In Foucault, Health, and Medicine, edited by Robin Bunton and Alan Peterson, 94–110. London: Routledge. Zola, Irving Kenneth. 1972. “Medicine as an Institution of Social Control.” The Sociological Review 20 (4): 487–504.

Prescribing Benzodiazepines in Uruguay: Tensions in Doctor-Patient Relationships Andrea Clara Bielli, Universidad de la Republica; Maria Pilar Bacce, Universidad de la Republica; Gabriela Lilián Bruno, Universidad de la Republica; Nancy Calisto, Universidad de la Republica; Santiago Navarro, Universidad de la Republica, Uruguay

This paper analyzes the emerging tensions in the doctor-patient relationships around the prescription of benzodiazepines in Uruguay, a small Latin American country in which these psychopharmaceuticals have very recently been considered a national public health problem. We present the results of a qualitative research carried out on the role of the so-called “benzodiazepine controversy” in the clinical practice of medicine, psychiatry and psychology in the uruguayen public health sector. We conducted 35 in-depth interviews to general practitioners, family doctors, psychiatrists and psychologists and 2 discussion groups. In the narratives of health professionals about the benzodiazepines prescription and the patients’ attitudes about their indications and recommendations, a tension emerges that puts into question the traditional hierarchical doctor-patient relationships. The professionals recognize a circulation circuit of knowledge and medicines outside the health system that questions their expert knowledge on the advantages and disadvantages of the BDZ and their role as initiators and leaders of the psychopharmacological treatment. This change of roles is supported by other figures that compete with health professionals’ authority: mothers, grandmothers, neighbors, pharmacist. Health professionals resist to this new situation through the formation of stereotypes of patients as disobedient and the disqualification of patients knowledge as magical, popular or simply wrong knowledge. We discuss that through this adverse judgment of patients’ knowledge health professionals mask the institutional reasons why their role is no longer sufficient to the patients.

‘It is Not a Pill’ - Engaging a Randomized Controlled Trial of Person-Centred Care Doris Lydahl, University of Gothenburg

What happens when a programme of standardization – evidence-based medicine – is used to evaluate what has been described as the antithesis of standardization: person-centred care? Modern medicine has been accused of reductionism and of ignoring human difference in pursuit of the best treatment for different diseases. Person-centred care directly responds to this situation by highlighting the unique individuality of each patient and by seeing the person behind the patient, seeking to engage this person as an active partner in their own care. Yet in the case under investigation in this article, an evidence-based medicine framework is used to assess whether person-centred care is setting a new standard of care practice. Drawing on a combination of document studies and semi-structured interviews with researchers engaged in a randomized controlled trial for person-centred care this paper examines how person-centred care and evidence-based medicine are interwoven and the tensions that emerge through this combination. In doing so, the paper studies how researchers combine an ambition to prize the uniqueness of the individual with an aim to extrapolate from knowledge of a few to produce guidelines for the many. Building on STS theories on the consequences of standardization the article concludes that the methodological demands of evidence-based medicine lead to a remoulding of person-centred care. This transformation can primarily be seen in the standardization of the person in person-centred care that is carried out in order to better evidence the outcomes of changes in care delivery.

Whose Feedback Is It Anyway? - Enacting Agency in Online Health Experience Reports Farzana Dudhwala, University of Oxford

Online patient commentary has been heralded as a means of obtaining ‘real time’ feedback that can potentially be acted on immediately. It is increasingly becoming a favourable route through which to obtain the views, suggestions, complaints, and compliments from patients and carers. But what kinds of patient is this move towards online feedback creating? Who is given a voice, and who is silenced? Does this sharing of (some) personal experiences foster informed choice, or create confusion? How do healthcare institutions and their staff decide which of the many modes of online feedback to give attention and weight to? Does a Facebook post or 3,000 word blog recounting the events of an operation count? Or must the feedback be solicited through more sanctioned and vetted means such as dedicated sites and online surveys? This paper deals with issues of agency, fluidity (c.f. de Laet & Mol, 2000) and negotiated multiplicity (c.f. Mol, 2002). Who is given the potential of agency, and from whom is it taken away? What are the limits, fluid uses that the feedback is put to? To what extent are some different avenues of feedback coordinated into a unified whole, at the exclusion of others? Drawing on insights from an ethnography conducted in UK NHS Hospitals, this paper develops a form of ‘empirical ontology’ (c.f. Law & Lien, 2012) in the context of online patient feedback, as well as tending to arguments about ‘representing and intervening’ (e.g. Hacking, 1983) by problematising the ‘who’ that online feedback creates - not just in terms of a ‘feedback-able patient’, but in terms of a ‘response-able healthcare institution’.

Chair: Nicholas Buchanan, University of Freiburg

040. Security in the Anthropocene: The Peripheries of Order
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Berkeley

Anthropos and the nonhuman are separated by the rift of communication, but this does not preclude the existence of many ecologies connecting the two. Mutualism and animosity bind acts in codependence and competition over interests. Both the organic materiality of animals and the political prescriptions of artifacts speak to an intentionality sometimes at odds with the human. This space of conflict is where Donna Haraway calls
for “making kin.” But how can we do this? Sensibility is an affective force asserted on the terrain, according to Foucault. It is a fact, according to the episteme and “the order of things” as Foucault writes. Perfect or true language is not one of communion between actants, but of power and direction. Communication expresses and manifests intentions, and sensibility comes from recognizing those orders. Sensibility comes from a disconnection between hostile design and users, between the persecutors and violated ecosystems, and between humans and exploited ecosystems. Sensibility emerges from strict rules of contact—commands in programming, chemical interactions versa vis a vers pheromones, and mechanical and structural defenses in plant growth. For instance, Anthropos’s appreciation for sensibility in animals arrives with domestication, a form of genetic and social conditioning where the human arrives at a place of understanding with tamed beasts. Does sensible communication always carry the subtext of control? This panel invites papers examining strategies for overcoming insensibility and insecurity in sociotechnical systems and between actants. Whether or not sense-making is always a process of conflict remains to be seen.

Participants:
Sensibility and “the order of things” as Foucault writes. Perfect or true language is not one of communion between actants, but of power and direction. Communication expresses and manifests intentions, and sensibility comes from recognizing those orders. Sensibility comes from a disconnection between hostile design and users, between the persecutors and violated ecosystems, and between humans and exploited ecosystems. Sensibility emerges from strict rules of contact—commands in programming, chemical interactions versa vis a vers pheromones, and mechanical and structural defenses in plant growth. For instance, Anthropos’s appreciation for sensibility in animals arrives with domestication, a form of genetic and social conditioning where the human arrives at a place of understanding with tamed beasts. Does sensible communication always carry the subtext of control? This panel invites papers examining strategies for overcoming insensibility and insecurity in sociotechnical systems and between actants. Whether or not sense-making is always a process of conflict remains to be seen.

Sensing Intrusion: The Fallible Logic of Home Security
Misha Bykowski, Stanford University
In contemporary Japan, the once proverbial truth “water and safety are free” is, more often than not, either heard in the negative, or relegated to a position of skepticism. Instead, shifts in crime trends have contributed to a broad atmosphere of insecurity, further propped up by the mass media. My 15-month fieldwork in Tokyo, Japan examined this dynamic of perceived worsening crime and the subsequent growth of a technologically mediated form of self-protection—home security. Based on 65 unstructured and semi-structured interviews with personnel within the home security industry, including product demonstrations, and participant observation at community crime prevention activities, I consider how material make-up is an intrinsic part of security. In this paper, I will look at how home security devices, such as magnetic sensors, motion detectors and vibration sensors, operate to detect crime, forming part of a larger security response system. Although home security depends on monitoring and response for effective application, the whole system rests on the ability of sensors to accurately recognize illicit entry. However, incapable of actually perceiving an intruder, I ask how particular threats become readable through technological devices. Looking at sensors as simplistic machines, I will examine how temperature shifts, sound waves, or magnetic pull come to stand in for something radically different, human presence. They thereby can only ever obliquely sense invasion, leading to frequent “misreadings,” even if functioning properly. Given the dramatic expansion of electronic home security in Japan since the early 2000s, I will consider the consequences of a now prevalent crime control method based on false equivalencies.

Technopolitics of Security Governance: Recalibrating Police Violence in Turkey
Hayaal Akarsu, University of Arizona, School of Anthropology
Based on an 18-month ethnographic fieldwork, my work examines changing conceptualizations and practices of security in Turkey through a study of ‘social policing’—a group of policing techniques and apparatuses that are mobilized to ‘reform’ the police and policing practices—in the midst of the country’s unfolding socio-economic and political instabilities. How do these new approaches that group so many issues under the umbrella of security accommodate the question of violence (and ‘harm’) while devising supposedly less-violent/less-harmful techniques, frameworks, tools, and styles for policing? In this talk, I analyze the ways in which the question of violence is rendered technical in the process of reforming security, contributing to discussions on power and violence, expertise networks, and technopolitical governance, as explored in several fields including anthropology, science and technology studies and security studies. I particularly focus on the issue of ‘proportional use of violence’, and apparatuses and discourses that are mobilized in that regard. As its name suggests, ‘proportional’ use of violence does not negate the ‘use of violence’ but problematically it is a set of calculations that revolve around the numbers and statistics, or deliberations on appropriate technologies and tools. A broader focus on the technicalization of policing practice, I argue, is crucial in order to better contextualize the wide-ranging constellation of re-forming security. Therefore, I conclude my talk by looking at the interactions between various actors (NGOs, International Human Rights Organizations, Multilateral Organization, transnational policing bodies, rank-and-file police officers) of security governance.

Making Objects of Security Non-Concern: Anomaly-Handling Strategies in Geoenengineering and Synthetic Biology
Samuel A Weiss Evans, Tufts University
There are several reasons researchers might want their work to be caught up in a security framing: it might provide visibility, ‘hotness’, or funding. Likewise, there are reasons they may want to avoid the security spotlight: to avoid being tainted with a military brush, or caught restrictive regulations, or unable to hold a engage in broader deliberations about its purpose and value. This talk provides both a theoretical advancement—advancing work on how anomalies are constructed and managed—and an empirical analysis. Drawing on the work of Thomas Kuhn, Sheila Jasano, Mary Douglas, Steve Rayner, Brian Rappert, and others, I outline a range of methods to construct areas of science and technology as anomalies within a regulatory and political system, and then articulate a set of strategies that are often employed to make the anomaly non-anomalous, or to maintain its anomalous status. Particular emphasis is placed on how these strategies are used to remove a sense of threat or danger that an area of new research or innovation seems to pose. I demonstrate how these anomaly-handling strategies have been deployed to quell security concerns around two different sociotechnical areas—geoengineering and synthetic biology. Based on 6 years of fieldwork in synthetic biology and 3 in geoengineering, I outline the reasons and strategies that have been employed, and discuss challenges to these attempts to stabilize a zone of absence around bio- and geo-security.

The Role of Risk in the Canadian Drone-scape: Stakeholder Narratives around Security and Surveillance Technologies
Ciara Bracken-Roche, Queen’s University, Department of Sociology
Discussion of drone technologies often focuses on the use of armed Unmanned Aerial Systems (UAS) by American forces (Shaw 2016, Klauser 2015). While much analysis has been done on the use of armed drones in these military contexts, less analysis has been done on monitoring and response for effective application, the whole system rests on the ability of sensors to accurately recognize illicit entry. However, incapable of actually perceiving an intruder, I ask how particular threats become readable through technological devices. Looking at sensors as simplistic machines, I will examine how temperature shifts, sound waves, or magnetic pull come to stand in for something radically different, human presence. They thereby can only ever obliquely sense invasion, leading to frequent “misreadings,” even if functioning properly. Given the dramatic expansion of electronic home security in Japan since the early 2000s, I will consider the consequences of a now prevalent crime control method based on false equivalencies.
041. Technological Innovation, Primary Healthcare and Social Justice II

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Clarendon

Primary healthcare refers to the most essential healthcare services, based on the idea of social justice and the right to better health for all. These principles were laid down in the declaration of Alma Ata in 1978 and were subsequently adopted by WHO. Four decades later, the realisation of the idea of social justice and the right to better health for all. These cross-country perspective, the prism of social inequality and cultural the (in)sensibilities of S&T developments in primary healthcare from a diversity, in order to generate novel and comparative insights into the following issues (but not limited to): the use and distribution of new technologies in primary healthcare, e.g. electronic health record and medical devices; the tensions that emerge between adoption of new technologies and needs of locally-evolved models of primary healthcare, that require a certain level of flexibility and adaptability; the balance between integration of new technological innovations and need for continued investments to increase the quality and quantity of local healthcare personnel; and the logistic challenge of training healthcare staff to adequately use new technologies, as well as strategies to identify and overcome cultural barriers to use of new healthcare technology among patients.

Participants:

REmaking Patients: The Case of a Robotic Brain Function and Cognitive Assessment Paige Upton, Queen's University
Research on the relationships between bodies and medical technologies usually examines the ways in which patient bodies are remade from the inside out; for example, through pharmaceuticals or medical implants. Less obvious, however, are the ways in which medical technologies which are external to the body change the ways patients conceive of themselves and their bodies. Drawing on an ethnography of a standardized robotic assessment of elderly patients' neurological functions, I argue that patients’ interaction with the robot significantly changes the way they experience, feel, and think about their own bodies. For example, it changes the way they move, think about their ability to remember, or how they feel about their age, long after the assessment is over. In this paper, I will show how the standardized assessment produces patients as disabled subjects, and the different ways in which patients respond to the assessment, including their limited ways of resisting the robot. The assessment significantly unsettles patients’ identities long after they had left it. This raises questions about how to conceptualize such effects in which a one-time connection to external technology spills over into other situations. Although Actor-Network Theory and Feminist Technoscience Studies are useful for unsettlign boundaries of ability and disability, or technologies and bodies, I argue that we need different conceptual tools for understanding the boundedness of such 'spillovers'; that is, the long-lasting changes once the patients leave the immediate situation.

Responsible Research and Innovation in Healthcare Policy Delivery: A Qualitative Study of the “Size Acceptance” Programme to Obesity Management Lada Timotijevic, University of Surrey; Emily Porth, University of Surrey
Introduction: “Responsible Research and Innovation” (RRI) is an important policy principle recently promulgated by the European Union, which requires a new approach to tackling global societal challenges in a way that ensures “the on-going process of aligning innovation to the values, needs, and expectations of society”. RRI emphasises the need for reflexive anticipation of the future outcomes of innovation trajectory, and calls for co-responsibility and ethical deliberation at the earliest stages of technological and social innovation. It is successfully implemented in the areas of science and technology such as nanotechnology, robotics or synthetic biology, however, applications of RRI to the process of social innovation have been considerably neglected. One global challenge calling for social innovation is the problem of obesity. The current approaches to tackling what has been referred to as “obesity epidemic” (WHO, 2003) have been largely unsuccessful. The predominantly bio-medical policy discourse of obesity (premised on the BMI as the proxy to health) has been criticized for the potential to give rise to moral panic, discriminatory language and invasive policy interventions, and has been scrutinised closely for the scientific assumptions on the basis of which it evolved. It is increasingly recognized that addressing obesity as a potential health threat requires an alternative problem framing to that defined by the current emphasis on weight. Method: This paper will explore the concept of RRI through Well Now, a “health gain” and “size acceptance” programme that is a noteworthy example of social innovation. Introduced to the Scottish National Health Service (NHS Highland) in 2012, it was adopted to replace a more normative weight management programme that had focused on weight loss and reducing BMI. Using data from qualitative interviews (N=17) with key stakeholders of the Programme, we discuss the Well Now programme implementation in the context of the current dominant bio-medical discourse about food, health and fatness, and its implications for healthcare practice. Findings and conclusions: The study demonstrates the role of Fat Studies activism in shifting the discourse about obesity and fat away from the predominantly biomedical models based on weight. The study extrapolates the main tenets of RRI evidenced through the Programme’s emphasis on co-responsibility, inclusivity and compassion, reflexivity and societal engagement and long term impact. It provides important insight into the processes of social innovation that require criticality about the policy discourses and the barriers to the implementation of the principles of RRI faced by those attempting social innovation.

Research on the Upgrading of Primary Medical Technology Based on Social Equity Zhihong Li, School of public policy and administration, Chinese Academy of Sciences; Honghong Cheng, School of Public Policy and Management, University of Chinese Academy of Sciences
With the rapid development of society, the upgrading of primary medical technology has become a new trend. It has become a universal need for convenient, fast, high-quality and low-price medical and health services. Medical fairness problem gradually becomes the focus of attention in the process of accelerated development of urbanization; how to solve the rural medical problem in a more efficient way has become a very important aspect of medical and health care reform in China. At present, there are still many problems in primary medical technology system. Primary medical service is faced with some technical and managerial problems, and also problems of human resources etc, such as backward medical equipment, unreasonable organization configuration, imperfect management system, and low medical staff education level, poor technical ability, low level of welfare. Those increase difficulties in the operation of primary medical system; a large number of public health work is unable to be finished. Based on the fairness theory, this thesis explores the scientific path of developing the primary health care from aspects of the government, primary medical units and medical staff. Finally, Puts forward some suggestions for the improvement of primary medical technology system.

Technological Innovation and Governance: Case Study of Primary Healthcare in China Zheng Li, NAIS, CAST; HUI LUO, National Academy of Innovation Strategy, CAST;
Postphenomenological Research 3: Media and Design

Under the background of increasingly development of new technologies, the world is experiencing changes of components that construct national innovation governance, which has been moving into a human-centred stage. Technological innovation, especially with Internet Plus, develops so fast that governance of new technologies sometimes failed to recognise problems. This paper showed the case study of the practice of healthcare reform in China, whereby medical alliance has been promoted as a new governance model. The study was based on questionnaire and interviews in the survey in Beijing in China which revealed the impact of the technological innovations, especially Internet Plus technologies, on the changing healthcare system. The conclusion showed that medical alliance based on internet technologies has updated hospital-based medical treatment into a patient-based form. Innovations of healthcare technologies have increased efficiency of allocation of medical resources meanwhile brought challenges of supervision of quality of online diagnosing and none-face-to-face treatment service.

Chair: Achim Rosemann, University of Warwick

042. Postphenomenological Research 3: Media and Design
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Dalton

This panel brings a postphenomenological perspective to the analysis of the technological mediation of media itself, our experience of the tools we use to both create and perceive in information of our world. These papers apply these ideas to the study of our technologically-mediated writing practices (including robo-journalism), our practices of design (including architectural and interface design), and our habits of news media consumption (including the encounter with “fake news”), drawing out their embodied, praxical, and political dimensions. The school of thought called “postphenomenology,” building on Don Ihde’s body of work, has had a presence at the 4S conference and other STS venues for more than a decade. Researchers from philosophy, anthropology, media studies, design studies, sociology, and other disciplines come together to bring a distinct perspective on the bodily experience of technology into STS investigations. A broadly international group of contributors develops and expands the postphenomenological framework, building on insights from phenomenology, American pragmatism, actor-network theory, the social construction of technology, and feminist theory, among other perspectives. These ideas are refined through their application to concrete case studies in users’ experience of everyday devices, and scientists’ experience of the use of laboratory instrumentation.

Participants:
Fake news and the politics of mediation
Peter-Paul Verbeek, University of Twente

The postphenomenological approach to technology has sometimes been criticized for being too little political: its phenomenological focus on the micro-level of human-technology relations would ignore the social and political structures surrounding these relations. As I have explained elsewhere (Verbeek 2013), though, this critique is not entirely right. Political structures and processes also manifest themselves at the micro-level of human-technology relations and the postphenomenological approach needs to develop adequate concepts to do analyze them. In this paper, I will contribute to this development, by investigating how technologies mediate political processes. I will argue that the ‘politics of technology’ is not only to be found in the power structures they are part of, but also in their mediating roles in political interactions. Connecting to the Latourian notion of ‘Dingpolitik’, which analyzes politics as the formation of ‘publics’ around ‘issues’ (Marres 2005), and also connecting to recent discussions on ‘fake news’ and the political role of social media, I will develop a postphenomenological analysis of how technologies mediate both the formation of publics and the articulation of issues. Such a micro-level analysis of the technological mediation of the content and the structure of political interactions, I claim, is urgently needed in our current popular political situation.

Thinking Through the Screen - A Postphenomenological Investigation into Digital Drawing in Architecture Education
Inger Berling Hyams, Roskilde University

Despite the fact that many have mourned the digital turn in architectural drawing as something perilously insensible, when architecture students today draw it is more commonly hand on mouse than pen in hand. This paper examines ideational digital visualisation based on ethnographic field observations and semi-structured interviews carried out at the Royal Danish Academy of Arts, School of Architecture. Pallasmann, among other critics of digital drawing (Pallasmann, 2009, see also Graves 2012), has reminded us of the importance of embodiment for the creative process of drawing, and denounced digital drawing for an inherent haptic remoteseness. When using a postphenomenological framework for analysis of students’ drawing practices a more precise image of the critique of digital drawing emerges. What Ihde has called visualism (Ihde, 2009) for architecture is as old as the profession itself and digital drawing technologies do not change this paradigm. The main difference between digital drawing and analogue drawing is the embodiment relation. However, it is not in the embodiment relation but in a hermeneutic relation and in a particular sort of alterity relation that the architecture student engages with the drawing as a thinking tool. Architectural thinking is formed through the act of drawing and the drawing is thus not a neutral representation. By exploring these relations this paper brings a new perspective of ideational visualisation in the creative arts to the extensive postphenomenological literature on visualisations.

Design Visualizations as Service Interfaces
Fernando Secomandi, Escola Superior de Desenho Industrial - UERJ

In this presentation I will argue that the visual materials that are generated and used by professional designers mediate their relations with the beneficiaries of their services. Building on field research carried out at the development location of a web-based self-tracking technology, I will analyze designers’ experiences of visualizations from the perspective of postphenomenological inquiry into imaging technologies. By doing so, I hope to present an example of how such notions as isomorphic/translational images, multi-stability, and co-constitution can be extended from the scientific laboratory, the usual site of postphenomenological studies, to the design studio.

From Hermeneutic Relations to Writing relations
Galit Wellner, The NB School of Design & Tel Aviv University

Technological platforms such as Twitter and Facebook are taken as their contents. Indeed, the format of Twitter shapes the structure of the contents resulting in short messages in which complex arguments cannot be developed. However, the question of whether such contents are true or “post-true” is separated from the platform, although sometimes stemming from it. Disconnecting analytically between platform and content is not an easy task, especially in light of McLuhan’s famous idiom “the medium is the message.” Against this rich tradition, I offer a distinction between platform and content (and between technology and media) based on reading-writing division. I suggest that technologies/platforms include a writing phase while media/contents require reading. The tools and the practices associated with writing are different from those of reading. For example, writing is done once, reading is performed endlessly. Different tools are involved: in digital writing a mouse or a keyboard is required; in reading a screen is sufficient. Different algorithms are implemented for writing (i.e. robo-journalism) or reading (i.e. big data). Analyzing the effects of these algorithms requires a distinction between reading and writing, and between media and technology. In postphenomenology the discussion on media and technology has been focused on reading, leaving writing to no more than occasional analyses. While the former is already modeled by the postphenomenological hermeneutic relations (Ihde, 1990), the latter has not yet been modeled.
propose to update the postphenomenological scheme of I-technology-world and add a fifth relation based on Verbeek’s composite intentionality (2008).

Chair:
Don Ihde, Stony Brook University

043. Digital Constitutionalism: Remaking Social and Informational Orders
Traditional (Closed) Panel
Sheraton Boston: Floor 3 - Exeter


Participating venues:

Online Speech and the Global Digital Constitution
Jaclyn Kerr, Lawrence Livermore National Laboratory; Stanford University

In December 2016 the companies Facebook, Microsoft, Twitter, and YouTube announced their intention to collaborate to curtail use of their sites in spreading violent extremist Internet content. These companies have often been criticized for hosting extremist and terrorism-related content, but efforts to remove such content have been limited by concern over the freedom of expression implications. The tech companies’ announcement came on the heels of weeks of public discussion concerning the role of viral “fake news” stories in influencing the outcome of the United States presidential election and the potential responsibility of social media platforms to in some way limit this phenomenon. These recent events have prompted significant contention over the appropriate roles of social media platforms and other actors in managing and possibly limiting the content that users can post and share. They have furthermore highlight the relative fluidity and contested nature of existing norms of “Internet freedom” influencing public discourse globally. This paper applies the STS framework of constitutionalism to investigate the development of our understanding of online freedom of expression and its role in contemporary democracy. As companies, international organizations, transnational civil society networks, and other “stakeholders” increasingly play roles in the contestation of norms concerning acceptable and unacceptable online content and public speech, our understandings of democratic freedom of expression are increasingly shaped by and helping to shape globally disseminated technologies and surrounding governance processes no longer bounded by our state-level democratic institutions or state-centric intergovernmental frameworks.

Devin Kennedy, Harvard, History of Science

Responding to a set of crises in US financial markets from 1968-1970, regulators and legislators pushed for broad reform of the rules, processes, and material infrastructure of the nation’s exchanges for stock trading. The culmination of this effort was the “National Market System” (NMS), promoted in the 1975 Securities Amendment Acts, which instructed regulators to pursue the technical and regulatory unification of the various fiefdoms of stock trading in America: to tether them together by electronic telecommunications, shared and regulated computer data processing services, and common market rules. This paper examines the contest between two differing political and technical visions of financial market governance in the 1970s, and extends the study of digital constitutionalism to the history of one of the late 20th century’s most important technical systems: financial market infrastructure. What would the NMS actually look like in material fact and regulatory practice? One virtual market for one nation embodied in a central market computer; or a loose confederacy of networked exchanges? This paper traces how two market technologies inspired visions of regulation and state-market interaction and reciprocally, how political assumptions about the role of federal governance became encoded in competing computing technologies. It builds off recent work on the infrastructure of market data by Knorr Cetina and Preda (2007) and MacKenzie (2015; 2016) but describes the politics of financial technology in the making as a conflict between competing constitutional orders: amalgams of political visions and technological imaginaries. Today’s market infrastructure is the legacy of their historical conflict.

Making and Governing Neural Life: Constitutional Dynamics in Neuroethics, Digital Discourses, and Brain-Computer Interfaces
Matthew Sample, Institut de recherches cliniques de Montréal

Brain-computer interfaces (BCIs), as images, are often associated with transcendence of the human condition and “posthumanity”, but such imagery leaves implicit the deliberative mechanisms and sociological dynamics that make technology possible (Jasanoff 2016). How did neural technology come to be seen as desirable and what types of persons, from patients to neuroethicists, are created in the process? Scholars have already begun to map these processes, noting that the neuroscience and its ethics creates “regimes of normativity” (Pickersgill 2012) that span neuroscientific research on morality, research ethics governance, and the quasi-judicial field of “neuroethics.” This paper expands these investigations, applying the STS framework of constitutionalism to the case of brain-computer interfaces. I collect here existing and new findings on how publics, engineers, ethics authorities alike use digital media to co-constitute persons and neural technologies. I suggest that this dimension of neural life, including algorithms for translating brain activity and press releases on social media, underpins several emerging rights and responsibilities, whether recognized or simply claimed: persons with disabilities are expected to change their bodies, patients demand medical support for experimental treatments, and professional ethicists position themselves to govern novel technologies. Based on these and other dynamics, we can begin to reveal an emerging constitution for new technologies of neural technology, and its publics. I argue that, while the content of this constitution may not be unique to neural technology, it provides us a chance to reflect explicitly on how publics participate in
Promissory Notes: Constituting the Trusted Time-Horizon of Cryptocurrency

Gili Yidan, Harvard University

From inside a US university innovation lab, the future looks like neon post-its on a whiteboard. Participants of a 2016 speculative design workshop are jotting down ways in which “the blockchain,” an architecture for distributed public record-keeping based on cryptographic methods, can serve as a fundamental social infrastructure for managing money, people, and synthetic organisms alike. These “heterogeneous engineers” (Law 1987) present a challenge to the constitutionalism framework. “Code is law” (Lessig 1999) is a reclaimed aphorism and the constitutional projects of blockchain advocates, tinkers, and speculative designers are explicit. What is the STS analyst to do when encountering such “kinship of methods” (Seaver 2014)? This presentation examines the empirical case of Bitcoin, a blockchain-based cryptocurrency, and suggests viewing digital constitutionalism as an orthogonal analytic. Reviewing a series of crises experienced by the Bitcoin network between 2013-2014, I approach the explicit constitutional project of making money—reordering the distribution of gains in a monetary system—as a construction of the time-horizon of the blockchain. Money, as a store of value, is always a demonstration of trust in a stable future. Bitcoin’s transactional model, however, offers a staccato timeline of affiliation between the network and the cryptographic citizen. The closures of the Bitcoin controversies themselves act as “promissory notes,” reliant on the duality of this time-horizon. Digital constitutionalist projects confront the paradox of technopolitical legitimacy—the coexistence of transparency and black-boxing as legitimating mechanisms (Jasanoff 1998)—through the production of these “promissory notes” and the leaps-of-faith required to move between them.

Democratic Wisdom and Technical Know-How in the SOPA Fights of the Obama Administration, 2010-2012

Marc Aidinoff, Massachusetts Institute of Technology

Among many Internet policy and activist communities in the United States, the story of grassroots (or netroots) resistance to the Stop Online Piracy Act (SOPA) has become a foundational myth for a new networked public. In one evocative telling, the Internet took on the nation-affirming role of Paul Revere and his decentralized network of riders (Lee, 2013). These narratives claim that a distinctly new form of Internet-enabled democracy could determinatively affect both policymakers and policy outcomes. This presentation therefore looks at the internal histories of the SOPA debates among key policymakers in the Obama Administration to understand how imaginaries of networked resistance reformulated approaches to governing. President Obama’s advisors envisioned and designed systems to “see” and “hear” the American people in a way that reflected conceptions of democratic expression, the potential mobilization efforts of a partisan political campaign, and inter-Administration turf wars. As SOPA online activism grew to a crescendo, these institutional and technical systems mediated policy recommendations in unexpected ways. The resulting bureaucratic deliberations revealed the co-constitutive American notions of democratic wisdom and technical know-how, in which certain technically-adept policymakers were able to speak and act on behalf of a growing imagined community and corresponding citizenry. In doing so, policymakers relied on the imaginaries and affordances of a Jeffersonian constitutionalism to protect a “Hamiltonian” Internet. As such, “grammars of participation,” grounded in both the local and the constitutional, determined not only the formative myth of SOPA, but also the nuts-and-bolts of crafting public policy (Kelty, 2017).

Chair: 
Margaretta Boenig-Liptzin, Harvard University

Discussant: 
Wendy Hui Kyong Chun, Brown University
tandem with reports such as the Moynihan Report and official War on Poverty studies. The operational predicate was to categorize and compare and contrast the newly arrived refugees against pre-existing racial groups. This not only elided the realities of the American war in Southeast Asia and its imperial underpinnings, but also erased on-going structural racism as it was experienced by Blacks and Latinos and attributing their economic and cultural status to their “inferior” family structures. Finally, I will summarize my article’s fundamental assertions by showing how the figure of the Vietnamese refugee family makes invisible the experiences of intergenerational trauma stemming from racist war and military intervention in refugee families.


Between 1942 and 1953, a new scientific regime quietly came into power at the heart of the United States Air Force to design and manage the military economy. This group comprised of economists, electrical engineers, and statisticians developed a rationality of warfare founded in mathematical epistemology and visualization. To disseminate this rationality into common usage, these technocrats developed an iteration of the ‘bombsight calculator’ to make sophisticated probability estimations. The re-imagination of this machine as a statistical calculator has had lasting effects on the nature of warfare as questions of ‘accuracy’ and ‘confidence’ have papered over the absurd, destructive and (in)sensible realities of military destruction with a discursive veneer of efficient calculation. This process stretched beyond the Second World War and was informed by important continuities in rationality, infrastructural support, and planning practices through the end of the Korean War. I break from conventional narratives that cast this planning work as procedural and banal, and explore the political and cultural implications and the legacies of this planning logic. Bombing damage collected and enumerated in places like Tokyo, Hamburg, and North Africa bolstered new data economies created to make ‘sense’ of the large-scale destruction of people, resources, and environment. Eventually the nature of this data production and lingering uncertainties inherent in the mathematics became black-boxed within the bombsight machine as a strategic technology in the Korean War. The routinization of these procedures set a precedent in the function of U.S. militarism dependent on ongoing mass production of data of destruction.

Chair:
Kalindi Vora, University of California San Diego

045. Living with Microbes and Viruses
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Gardner

Participants:
Slow Thaw: Cold War Residues in the Negotiation to Bring Cuban Cancer Vaccines to the US. Naomi Schoenfeld, UCSF

The December, 2014 rapprochement between the US and Cuba generated a flurry of media coverage throughout 2015. Cuba’s biopharmaceutical sector garnered particular attention for its innovative therapeutics developed despite the restricted resources resulting from the US embargo. In this paper, I focus on the star of this media attention: a novel treatment called Cimavax, a ‘therapeutic vaccine’ for lung cancer. New York governor Andrew Cuomo facilitated an agreement with Cuba’s Center for Immune Molecular Biology (CIM) to license Cimavax to the Roswell Park Cancer Institute (RPCI) in Buffalo, New York, for clinical trials. The drug was FDA-approved for clinical trials in October 2016. Through a fine-grained textual examination, I analyze the words emitted and omitted both in Cuban and US media coverage of the agreement. I supplement this with an analysis of an interview I conducted with the lead researchers at RPCI just after FDA approval of the first US trial of Cuban Cimavax. I consider the choreography of cold war competition, scientific regulatory regimes, and patent protection on the negotiation and eventual agreement between RPCI and CIM to license Cimavax for clinical trials in the US in 2014. I explore the frictions and confluences of knowledge, expertise, and humanitarism as Cimavax travels against the expected path of technology: moving from south to north. Through this analysis I ask: in what ways are the residues of the cold war reflected, superseded, or transgressed as Cuba’s cancer vaccine begins its clinical trial journey in the US?

Vaccination, Uncertainty, and Risk: A Different Perspective on Vaccine Hesitancy Tarryn Abrahams, Virginia Tech

According to the dominant narrative, vaccines are one of the greatest successes of the modern era, possibly medical miracles. We are repeatedly reminded by doctors, the media and medical authorities that vaccines are safe, effective, and necessary, and that the science is settled! Yet some individuals still choose to selectively vaccinate themselves or their children, or forgo vaccination altogether. Medical literature often attributes this to an information deficit. But, when education of parents doesn’t result in compliance with vaccine recommendations, conflict can result. Some pediatricians dismiss families who continue to refuse to vaccinate from their practices. Some physicians have even argued that non-vaccination equates to medical neglect and that physicians should report non-vaccinating parents to Child Protective Services (Chervenak, McCullough & Brent, 2016). In this paper I analyse vaccine hesitancy as a manifestation of risk, utilising Beck’s framework of global risk societies (2008) as my primary theoretical foundation. Drawing from literature and qualitative interviews, I argue that vaccine hesitant parents don’t necessarily suffer from a lack of information, but rather that they may view health and uncertainty differently; that while they are often at odds, pro-vaccine and vaccine hesitant positions are both manifestations of similar risk based logics, and can and do share a similar orientation. I further elucidate how the vaccine narrative is challenged by the uncertainty generated by emerging scientific and medical knowledge, or events such as outbreaks. Acknowledging these commonalities and uncertainties, I argue, can help provide a foundation for constructive dialogue about an often polarizing issue.

A Biopolitical Landscape: Disease Surveillance Cate Portillo-Silva, University of California, Merced

Valley fever (V.F.) cases have skyrocketed in the last few years—bringing media attention to the “silent epidemic” that can occur with “just one breath” of airborne Coccidioides—the soil-dwelling fungus endemic to the desert southwest of the U.S. Public health officials are uncertain as to why. In this paper, I will focus on one possible explanation for this dramatic increase: changes in how Valley fever is done—how it is diagnosed, and how cases are defined and counted—inherent elements to the multi-scale process of disease surveillance. What is the threshold that must be crossed for Valley fever to exist in the clinic, the lab, and as an epidemiological case at local, state and federal levels? V.F. is a nationally notifiable disease: the CDC collects information provided by state health departments and publishes reports painting a national picture, so as to alert the public to epidemics and inform future research and policy. But what counts as a Valley fever case is a moving target, contingent on resource availability and legislation. This paper is based on an ethnographic study designed to capture a contextualized understanding of Valley fever, to take a look into the black box of its etiological research and surveillance. I will present findings from participant-observation and in depth interviews with Valley fever researchers and epidemiologists working at the county and state levels, as well as the CDC.

The Apparatus of Enmity: Microbes, Antibiotic Resistance, ‘Culture’ Rijul Kochhar, Massachusetts Institute of Technology

What does antibiotic-resistance look like? A phenomenon in a time described by the WHO as an emergent “post-antibiotic era—in which common infections and minor injuries can kill” (WHO Report: 2014), antibiotic-resistance is a contemporary and complex terrain of technique and anticipation marshaling human,
microbial and zoonotic populations located across healthcare, industrial-agricultural, and biotechnological realms that, together, summon the widespread 21st-century successes of antibiotics. To confront the cultural and technical legacy-generations of antibiotic failure in the 21st century merits a foray into the zone of the microbiology laboratory—a late-modern space of visualisation and judgment geared towards painstakingly culturing pathogenic microbes, testing their sensitivities against a range of antimicrobial chemo-therapeutics, and awaiting the general failure of antibiotics in culture. Based on fieldwork conducted in one of Delhi’s premier, commercial microbiology laboratories over the summer of 2016, and pursuing a larger research interest in the techniques of visualizing and intercepting recalcitrant bodies—both human and microbial—that populate the terrain of antibiotic failure, this paper examines human imaginaries of threat across entangled species worlds. At the Delhi laboratory, the author-anthropologist underwent basic training under the supervision of a resident microbiologist, whilst observing and participating in how the equipment—comprising the test reagents, agar media and instruments for cultivating bacterial strains, and the advanced diagnostic machines (such as the BacT Alert system, ViTek, and GeneXpert)—are put together by technicians to elicit a diagnosis and offer a cure. In pursuing an investigation of antibiotic-resistance from the ground up, the laboratory is a place to see how this crisis is being confronted, negotiated, diagnosed and contemplated on an everyday basis in ordinary and hi-tech worlds. By describing the work performed in the microbiology laboratory—and untangling the entwinement of mundane tasks, techniques, epistemologies and equipment—the paper establishes what may be named an apparatus of enmity, the technical pursuit of making life possible by sequestering that which is inimical to it. Deploying Carl Schmitt’s philosophico-theological excurses of politics as the fundamental distinction between friend and enemy, the paper argues that the technical apparatus of the laboratory, as well as the language and microbiopolitical practices of antibiotic-susceptibility and diagnostics deployed there, establish deep ontological boundaries between microbes and the human bodies as fundamentally separate entities requiring surveillance and protection against contagion and contamination. Under the roof of “microbiopolitics” (Paxson: 2008) resides a concept of the political distinction between friend and foe, one that is actualized in specific techniques and language of warfare to achieve instrumental ends. One way to speak of the apparatus of enmity is to chart the ontology of the enemy—and therefore—to pursue the labour of technoscientific salvation in engineered worlds. This is the labor of referral, sampling, culturing, isolating, diagnosing and reporting the susceptibility of pathogenic microbial life to the chemotherapeutics of their extermination. The microbiology laboratory is a site that not only makes distinctions between human and pathogenic life-forms; it is also emblematic of a form of life that helps generate the conditions of life by making distinctions between what constitutes life and what is inimical to it. Consequently, an ethnographic account of the microbiology laboratory aids in witnessing not only the labour involved in the diagnosis of antimicrobial resistance; the laboratory also helps one navigate the larger dilemmas of antibiotics-use in culture when seen through the lens of technical faith, localized threat, and planetary contamination.

Chair: Rijul Kochhar, Massachusetts Institute of Technology

046. Situating Innovation, Interrogating Power
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Jefferson

Innovation is described as sine qua non for successful businesses, governments, and individuals. It promises to improve products, processes, and organizations, and the business world often positions these benefits as a matter of outlook. To them, innovation is regarded as a perspective or organizational orientation easily deployed across sites. Within the tech industry, innovation is assumed to emerge primarily from places like Silicon Valley. Even government agencies have started looking towards such places and their practices as a model to “disrupt” the status quo. But are these ideals, competing political agendas, and personal motivations? Ultimately, what are the ways ideals of innovation transform individual and social life and inevitably reproduce the social challenges that innovation teams are assembled to fix.

Experiencing Innovation Seyram Avle, University of Michigan -
Navigating Liminal Spaces in Scientific Knowledge Production

Innovation as a concept is often used in neutral terms even though it is also often connoted with or accompanied by an imagination of a specific place. For instance, while digital technology innovation is described as possible anywhere in the world, it is at the same time imagined to emerge primarily from Silicon Valley and diffuse to the rest of the world. In this imagination, Silicon Valley is a center of innovation and those seeking to be innovative can and should learn from it. In recent work examining digital technology production from around the world, the evidence points to a duality in terms of how those outside the valley regard what emerges from there. On the one hand is a reinforcement of the notion that Silicon Valley is the place of innovation, through an endorsement of its methodologies and mythologies. On the other is a rising resistance to the idea that that kind of innovation is necessarily relevant to people with different lived experiences. In this paper, I explore the idea of an experiential criteria for innovation – one that addresses the question about who specific innovations are for and for what purposes. I locate these within the context of digital technology production, using short cases from Ghana and Ethiopia to animate the discussion about what innovation means relative to place and how experience, as a marker of place (Tuan 1975), necessarily changes what innovation looks like and represents.

In the Name of Innovation: How a Contemporary, Multi-tiered Reform Movement Came to Focus on Remaking the City

Innovation is a comprehensive ideology that proponents use to reform every level of society. At the highest level, economists retellt national and international statistical measures and debate ways to calculate aggregate innovation, say, through patent counts, and legislators reform intellectual property law, higher education policy, and the tax code to spur on commercializable “creativity.” At the meso-level, organizations, from firms to governments, remake themselves in the language of innovation-speak. At the lowest level, teachers groups and parents’ associations discuss how to discipline young bodies and minds, including by starting robot clubs and holding “maker faires,” to ensure that children are deeply steeped in so-called “STEM education.” In this talk, I will draw on one of Michel Foucault’s helpful suggestions: to see biopower—or forms of statistical knowledge—and discipline—as the anatomo-politics of the human body—as two poles of power. I will briefly outline the history of the innovation idea and what it has meant for these poles and the “whole intermediary cluster of relations” between them. Importantly, the schools of thought—like Schumpeterian and evolutionary economics—that have most deeply influenced innovation-thinking focus on the local or regional character of innovation and industry creation. The key example today is Silicon Valley, but history if full of others from Detroit (automobiles) to Akron (tires) to Youngstown (machine tools), just to name a few examples from the American Midwest. In this talk, I will trace the history of how a focus on locality and spatiality has become baked into theories of innovation, and I will examine the local policies that have aimed at fostering innovative activity. I find that these policies take two basic forms: first, economic incentives, like prize competitions and “business incubators;” and, second, changes meant to make localities attractive to innovators, a la Richard Florida’s The Rise of the Creative Class.

Chair:
Seyram Avle, University of Michigan - School of Information

047. Navigating Liminal Spaces in Scientific Knowledge Production

There has been a growing interest in alternative forms of knowledge making within STS, as the citizen science movement increasingly creates new niches for the production of data and knowledge. Much of current STS research has focused on questions such as: ‘what is citizen science?’ and ‘how is science undertaken?’ In contrast, this panel questions how alternative forms of science relate to traditional scientific research. In particular, we ask how do the variety of normative underpinnings of alternative forms of science impact upon key issues such as knowledge creation and scientific consensus? And how does mainstream science make sense of this? This panel will consist of papers that will examine the utility of boundary-discourse in understanding scientific knowledge creation and application — whether the liminal spaces between traditional and emergent knowledge creation niches facilitate or hamper the development of robust imaginaries of scientific research. Reflecting back upon mainstream science equally investigates the place of science as part of, and embedded within society, reflecting the responsibility of science and technology to engage with the needs and expectations of its users and those it may potentially impact.

Participants:
Does it Matter HOW Data are Created? Louise Bezuidenhout, Institute for Science Innovation and Society
Recent advances in engineering and computing have led to increasingly mechanization of data production in many areas of scientific research. Coupled with concerns about the reproducibility of scientific research and the increasing need to compare data sets across geographic, temporal and cultural boundaries, it is tempting to assume that the mechanized the science, the more reliable it is. While such assumptions are critically interrogated in modern STS literature, they nonetheless continue to proliferate in discourses about science – both in society and within the scientific community. In addition to the issues relating to reliance and trust placed on experimental equipment, these assumptions also have the potential to create new divides within the landscapes of knowledge production. In recent decades there has been a proliferation of research conducted in lower-resourced environments (below a Western average). These settings could range from citizen science laboratories to academic laboratories in low/middle-income countries and are characterized by less, older and more basic laboratory equipment. It therefore becomes important to question how the data produced in these settings – via less mechanized processes – are integrated into global scientific research. Are there hidden agendas relating to how data are produced that shape what are “acceptable” or “unacceptable”? This talk interrogates these issues in detail, by describing the social, political and epistemic issues that shape the movement of data out of these low-resourced settings and into gainful circulation.

Institutional Cognition across the Clinic – Research Divide
Chris Goldsworthy, Institute for Science, Innovation and Society, University of Oxford
There has been a long tradition in STS and medical sociology investigating the relationship between biomedical research and clinical practice, traditionally focussing on the translation of scientific research and novel technologies into the clinical setting. This paper, taking the example of the relationship between biomedical research and the clinic in the field of inherited cardiac conditions in the UK, aims to work in dialogue with this corpus of work by presenting a reciprocal relationship between research and the clinic serves to break down the traditional dyadic relationship. In doing so this paper asks how actors are able to make sense of the practices, needs and agendas across the clinic – research boundary? This paper will also examine the impact this has upon institutional practices, not as separate entities but as part of ecological systems. Drawing upon Douglasian Cultural Theory, Material Engagement Theory and Distributed Cognition this paper positions institutional cognition as visible within socio-material organisation of the institutional space and suggests this is used to make sense of needs, priorities and practices across institutional boundaries particularly in spaces where there are perceived overlaps and intersections. This paper will thus discuss the impact of inter-institutional sense making upon clinical and biomedical research design, as well as upon the process of the translation of research into the inherited cardiac conditions clinic.
This study will offer insight into how biomedical research engages with the intended users of the research in a dynamic and responsible way. As such it contributes to the corpus of work discussing the co-construction of science and society, positioning society as very much embedded within biomedical research from the research design phase, through to research translation and application.

On the Predictive Power of Forecasting

Sara de Wit, Institute for Science, Innovation and Society, University of Oxford

Due to the two interrelated developments that (1) natural hazards and environmental disasters are on the rise, and that (2) weather forecasting technologies are becoming more accurate, a new concept – Forecast-based Financing (FbF) – has made its way into the humanitarian sector. This new “technology of aid” is driven by the idea that improved forecasting methods of natural hazards facilitates appropriate action before a disaster takes place. In this paper I wish to explore how the predictive power of science possibly shapes new trajectories and expectations of aid, and how this emerging knowledge practice relates to other “forecasting cultures” and alternative epistemologies.

Making Energy Futures Sensible: Expert Imaginaries and Affect

Christopher Groves, Cardiff University; Cardiff, Wales, United Kingdom; Karen Henwood, Cardiff University; Nick Pidgeon, Cardiff University, UK; Fiona Shirani, Cardiff University.

It is increasingly recognised that, when it comes to energy system transitions, ‘energy policy choices reconfigure societies’ which means that ‘the social-dimensions of energy systems are particularly salient for energy policy choices in the context of large-scale energy transitions’ (Miller, Richter, and O’Leary 2015, 30). At the same time, the ways in which anticipations of energy futures influence and flow into action in the present is relatively under-investigated. The sociology of expectations (Borup et al. 2006) has explored how the circulation of promissory futures in everyday contexts of care and concern.

This presentation is based on a series of expert interviews conducted in 2016-17 with senior investigators from across the academic institutions, local authorities and private sector organisations involved in Flexis (http://flexis.wales), a multi-site academic institutions, local authorities and private sector conducted in 2016-17 with senior investigators from across the academic institutions, local authorities and private sector organisations involved in Flexis (http://flexis.wales), a multi-site and how this emerging knowledge practice relates to other “forecasting cultures” and alternative epistemologies.

Expectations in Science and Technology.
welcome submissions from scholars who explore historical and current power dynamics that shape reproduction in global contexts.

Participants:

Dealing with the Uncertainties of the Pill: How Stakeholders Negotiate the Risks of New Contraceptive Technologies
Alina Geampana, McGill University
The purpose of this paper is to analyze risk models employed by medical professionals and users to assess the safety of new and controversial oral contraceptives containing drospirenone (brand names Yaz and Yasmin). Drawing on in-depth interviews with more than 40 key stakeholders, I argue that contraceptive research and risk assessment is characterized by uncertainty and doubt, contrary to popular beliefs about the pill. This research has found that very few users are informed about numerical risk probabilities before they go on a hormonal contraceptive.

Likewise, professionals express dealing with risk uncertainties both in epidemiological research and clinical practice. This paper identifies 5 key areas characterized by risk uncertainty as it pertains to hormonal contraceptives: clinical trial data, individual risk profiles, post-marketing research, risk perception, and purpose of drug use. Many recent studies have dealt with genetic and other medical risks from a critical qualitative perspective. However, the risk literature on the evaluation of contraceptives has remained limited to quantitative and survey perspectives, with very few exceptions. This study addresses these shortcomings not only by providing a critical analysis of women's experiences while on the pill, but also by showing how the modern complexities of health risk assessment extend to the realm of hormonal contraceptives.

Demographic (In)Sensibilities in the Contraceptive Age
Carole McCann, UMBC
As birth control politics blossomed in the 1930s, demographers developed quantitative practices to measure the effects of contraception and predict its impact on aggregate fertility rates. Drawing on research from my recent book, this paper provides a transnational feminist science studies re-reading of early contraceptive use studies to exhume the racialized gender logics inscribed in/by statistical measures of contraceptive effectiveness. Contrasting how demographers 'made sense' of fertility and its control with women's narratives of reproductive life, the analysis interrogates the co-configuration of demographers' metrics of pregnancy risk, natural (i.e. uncontrolled) fertility, and contraceptive competency. It shows that by indexing pregnancy risk to ovulation events during marriage, demographic quantification both defined fertility as an excessive feature of women's bodies and simultaneously rendered insensible the conflicts about marital sex and specter of childbirth death that were central to women's accounts of reproductive risk. Further, I argue, demographic calibration of contraceptive competence severed contraception from the social and economic circumstances of its acquisition and use. Instead, asserting that motivation was of greater importance than access, demographic comparisons of differential fertility and contraceptive effectiveness rates relied on eugenic logic to explain racial/class differences in terms of cultural incompetence in foresight and planning. The analysis concludes that the feminine figures of excess and incompetence produced by demographic quantification underwrote the mid-twentieth century sensibility that populations were exploding because fertility was insufficiently controlled and that that warranted aggressive intervention in racialized-other-women's bodies and practices to guarantee a successful demographic transition.

Ethnography of the Unborn: Schools of Pregnancy and Turkish Reproductive Politics
Hatice Nilay Ertan, Yale University
Discussions on reproduction have become an essential part of the social and political life in Turkey through what might be called as the "pronatalist turn" since 2008. Drawing on participant-observation and in-depth interviews conducted at a private hospital, a state hospital and home-visits in Istanbul, my paper offers a critical analysis of how emergent pronatalism in Turkey plays out as increasingly powerful discursive, legislative and biomedical interventions into women’s lives and the complex ways in which women negotiate these interventions. To this end, I specifically examine the mushrooming Schools of Pregnancy ("gebe okullari"), which are framed as vital to attain "healthy generations". Pregnant women are encouraged to attend weekly sessions at public or private hospitals. On the one hand, these schools’ curricula encourage women to respect and trust the “baby” and have as “natural” as possible births. On the other hand, biomedicine, science and technology coalesce in these schools’ curricula and construct the unborn as a rational subject with individual choices. From the position in vitro to the decision of the mode of birth, the unborn emerges as a neoliberal subject whose free will and decision to be honored. Through exploring the contemporary ideas and practices about the unborn, I trace what Schools of Pregnancy might illuminate about biopolitics and biomedicine in the context of emerging pronatalism. I attend the kinds of subjectivities, bodily effects and reproductive policies that are being produced through the emergence of these schools.

Men, Medical Knowledge, and Reproduction
Rene Almeling, Yale University
Medical researchers have been making headlines with a surprising series of findings about men and reproduction. It turns out that the health status of men’s bodies prior to conception can directly affect the health of their children. As a result, many of the warnings that women receive about pregnancy - regarding their age and watching what they eat, drink, and smoke - also apply to men during the three months that sperm develops inside their bodies. The average American man does not know any of this. That is because basic medical knowledge about the effects of men's bodily health on reproductive outcomes has only recently begun to be produced. This lack of knowledge is only made more glaring when one thinks of the enormous efforts to understand and treat women’s reproductive bodies over the past 150 years. Situated within social scientific literatures on gender, medicine, and knowledge, this book project is motivated by the question: Why did it take so long for researchers to begin asking basic questions about how men matter for reproduction? To examine the history of medical knowledge-making about men's reproduction and its social and clinical implications, I collected medical studies and newspaper articles about sperm published from 1880–2014, conducted oral histories with prominent physicians and scientists who study sperm, and interviewed individual men (n=40) about reproduction. My 45 presentation would focus on the qualitative interviews with men and their reactions to learning about "healthy sperm" for the first time. The goal of the book is to encourage social scientists, clinicians, public health professionals, and policymakers to attend to men's role in reproduction. Doing so has the potential to improve men’s health and the health of their children. It may also influence reproductive politics more broadly, expanding beyond the narrow focus on women to include men in discussions about how bodies and societies together wield power over the health and lives of individuals.

There is, at present, significant enthusiasm across the political spectrum for long acting reversible contraceptives (LARC), which promise an affordable, reliable, and safe means by which to reduce rates of unplanned pregnancy and abortion. LARC promotion is currently one of the most important issues in reproductive health in the U.S., and while LARC’s proponents argue that it is a magic bullet solution to fertility management and concomitant health disparities, the landscape of LARC promotion is complex and controversial. As LARC promotion efforts are officially adopted by states and the world’s most influential health organizations, sustained critical attention is warranted to the diversity of ways in which LARC may or may not do the work it is intended to do in the world: to empower
people to choose not to get pregnant. Because the current wave of LARC promotion in the U.S. is so historically recent (cf. Takeshita, 2012), little data exists about women’s experiences obtaining and using these newer devices. In this talk, we present the preliminary data from our study investigating “life with LARC.” The study takes qualitative approach to explore the social life of LARC devices as they become the preferred contraception of many legislators, health policy advocates, healthcare providers, and consumers in the contemporary United States. We conducted focus groups with young (18-24) women in three U.S. states that rank in the top 15 for teenage pregnancy rates: South Carolina, Tennessee, and Arizona. The primary purpose of these focus groups is to explore participants’ experiences with and understandings of LARC, specifically how it may or may not engender reproductive choice. The larger goal of this long-term research project is to better understand the origins, implementation, and consequences of policies and practices designed to ameliorate social inequalities by examining the LARC promotion and use in the contemporary United States.

Chair: Alina Geampana, McGill University

052. Interrogating Food Science and Technology I

Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Beacon B

It seems fashionable in a range of circles—nutrition, social justice and sustainability advocacy, slow food—to critique food and agricultural sciences. However, outside of agricultural historians, STS scholars have largely left food and agricultural scientists, their labs, and their technologies, unexamined. Perhaps this is due to these disciplines’ service nature—their dedication to solving problems for the agricultural industry. This may be a missed opportunity. Apostolos Geronas (2014) suggests that the most radical shifts in twentieth-century scientific knowledge making occurred in “grey zones” where the academy interfaces and compromises with industry and government. Few spaces of scientific knowledge production are as tightly imbricated with industrial agendas and government priorities as food and agricultural sciences. Since the early days of the Green Revolution, scientists and engineers have become primary knowledge-makers in producing food that is good to eat as well as determining what food is good to think (Lévi-Strauss 1962). We invite papers that explore the grey zones where industry, food and agricultural sciences, and governance meet. How has the development of a science of food in these zones shaped the partnerships at the heart of the green revolution, and our food (and other) landscapes? How has the growth of a cadre of food and agricultural experts “black boxed” (Latour 1999) what makes food good, as well as what is— and is not— food? How have instrumentation, measurement, and technology shaped understandings of nutrition and food quality? What worlds are produced, and which are erased, by the scientization of food?

Participants:

Mitigating the ‘Credibility Paradox’ in the Social Negotiation of ‘Good Food’ in China Joy Zhang, University of Kent

It is both a blessing and a curse to be a GM scientist in contemporary China. Being one of the world’s leading consumers and producers of GMOS, GM science in China has received strong government support. Yet on the other hand, a growing number of food scandals in China have led to a high level of social scepticism and distrust towards GM technology. More importantly, despite goodwill from the scientific community to engage with public concerns, extensive fieldwork has found that a key hindrance for (re)building trust and accountability of food science in China is a ‘credibility paradox’ in science communication. Most scientists interviewed reported that an absence of visible institutional endorsements rendered them with more public credibility and better communication outcomes. Thus, instead of exploiting formal channels of science communication, scientists interviewed were more keen to act as ‘informal risk communicators’ in civil society and private events. Based on 11 focus groups with the general public, 21 in-depth interviews with scientists in 4 cities, and a pioneering public engagement training workshop in Wuhan organised by the author, this paper investigates how in response to the credibility paradox in China, GM scientists explore innovative ways to open the ‘black box’ of food-related research to the public. It demonstrates that, in this seemingly one-way process, scientists involved also learnt to sympathise with and incorporate a social understanding of ‘good food’ into the narrative about their own research.

Nixon’s Nuggets: Engineered Food and Culinary Inequality

Hannah LeBlanc, Stanford University

In August of 1970, Walter Rowland, a comptroller in the Air Force, wrote to Nixon’s Special Assistant John Price to suggest that “we engineer a complete food for humans similar to modern dry dog food.” “Uncle Sam’s Meal” or “Nixon’s Nuggets,” as he suggested this food be called, would provide “high quality protein,” carbohydrates, fats, and vitamins, and could easily be mixed in “the Mexican housewife’s frijoles, cabbage or turnips in Appalachia, and gheto soup.” Though Price rejected the suggestion, the federal government had, in partnership with food industry, experimented with complete foods in “the poor countries overseas” for nearly ten years, including a failed attempt to create a high-protein “fish flour” as well as more successful “Corn-Soy-Milk” products. In this paper, I use archival materials to examine the advent of engineered “complete” foods designed for the poor in the 1960s and 1970s. Why did government officials, nutrition experts, and food industry leaders propose engineered foods as both a technology of eating and a technology of governance? This paper argues that engineered foods, developed for the military and space program, provided the U.S. federal government with a ready technological solution to a perceived social and political problem in which malnourished bodies, particularly when they belonged to black and brown people, were linked to political radicalism at home and abroad. The debates over engineered foods also show that experts considered these foods acceptable only for the most marginalized, revealing different levels of a citizenship across race, class, and location.

Are Perceptions of ‘Unnatural’ Important To the Acceptance of Technology in Food Production? Ellen Goddard, University of Alberta

Technology affects food production and processing in a number of different ways that are more or less acceptable to people, related to the belief that technology is unnatural. Many products of genetic technologies have not been accepted (eg. Golden rice). Belief that a process is not natural can affect attitudes towards enhanced or enriched livestock products which might be occurring through feed type. The process of fortification of foods is long standing but since it occurs after the raw food product is produced it is also considered to be unnatural by some. New technologies in food may becoming more necessary to produce the safe, sustainable, nutritious food the world requires (Schorrder et al, 2013; Allen et al, 2013; Weaver et al, 2014). More information/education (knowledge deficit model) will not change people’s minds about the acceptability (and naturalness) of products of new technologies (Lusk et al 2014). More acceptability has been associated with certain types of (an individual’s) worldview or general political or cultural attitudes (cultural cognition, Kahan et al 2009). The importance of perceived naturalness is highlighted through research on the acceptability of certain developments in livestock production (higher feed efficiency, higher levels of human health requirements, less need for antibiotics used in production) and plant production (plant products fortified or plants biofortified to have higher Vitamin A content). The results suggest wide variation in what is viewed as natural by individuals, influenced by context, socio-demographic characteristics, food values representing a specific worldview and knowledge.

Taste No. 5: Imperial Japan, Protein Chemistry, and Race-making with Monosodium Glutamate (MSG) Sarah Tracy, University of California, Los Angeles

The flavor enhancer monosodium glutamate (MSG) was a
product of the brave new world of modern Imperial Japan, in which Meiji (1868-1912) and Taïsho (1912-1926) reformers envisioned Japan as the future center of political, military, and cultural gravity in Asia. Thus, the applied chemistry of this era in Japan, as in Europe, was driven by both international collaboration and competition. Through analysis of scientific and trade literature, I tell the history of MSG’s isolation and patenting through the lens of the inspiration and threat of a raced nemesis or, borrowing the language of Said (1978) and hooks (1992), a worthy Other—a curious mirroring evident in the actions of Japanese and American scientists, entrepreneurs, and pundits of the period. This talk, excerpted from my book monograph, situates MSG’s origin in the formative decades of international nutrition science by focusing on the rootedness, rather than rootlessness (Clifford 1997), of early applied chemistry and nutrition. I provide one account of what becomes (in)sensible when science and capitalism, which both assume universal applicability, are textured by their passage through national borders. Specifically, I describe how a Japanese scientist’s claim to having discovered a fifth human taste sensation—umami (savory deliciousness)—was detained at the U.S. border and sent home until the turn of the twenty-first century, at which point its value to American food science became newly perceptible.

Chair: Christy Spackman, Harvey Mudd College

053. Anthropocene, Capitalocene, Technoscience I: Anthropocene and Capitalocene as a Diagnosis

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Beacon D

The goal of this panel is to explore the trialectical meeting of STS, Anthropocene and Capitalocene approaches. The concept of the Anthropocene and its planetary scale challenges STS myopia and technoscientific (re)creation of Nature; possible use of Anthropocene scale of thinking and a local methodology of research. But there is a second, more important tension: standard interpretation of the Anthropocene offers a very Eurocentric and depoliticized approach to history. The switch from Anthropocene to ‘Capitalocene’ forces us to reconsider a more politically historically situated starting-point: “The Capitalocene signifies capitalism as a way of organizing nature—as a multispecies, situated, capitalist world-ecology” (Jason W. Moore). World-ecology analysis (an ecological version of World-System Analysis) combined with STS gives us an opportunity to engage in a strictly critical, “glocal” situated analysis. There is also the third tension between science as expert in the dominating Anthropocene narrative, and the hot, fragile and complex science as viewed by STS. We propose our panel as a trialectical research platform which will allow us to rethink and “unthink” concepts of development, innovation, knowledge, technoscience, nature and capitalism. We would like to focus on the mutual (re)creation of knowledge (technoscience), nature and capitalism. For the panel we propose the following areas to explore: methodological and ontological analysis of holistic/ecological ontology of human societies (olkieos ontology); the future of structures of knowledge challenged by the Anthropocene/Capitalocene; methodological discussion about possible situated and critical “glocal” research; relations between technoscience and capitalist appropriation of Nature; sociohistorical analysis of anthropogenic and technoscientific (re)creation of Nature; possible use of Anthropocene as a Utopian rather than descriptive term.

Participants:
What is a Good Seed? Sense Making, Everyday, and Nostalgia around Genetically Modified Seeds in India Ashawari Chaudhuri, MIT
What is a good seed? What kind of a thing is a seed, to begin with? Through fieldwork in India with farming communities, scientists in seed companies and government regulatory agencies, the paper attempts to make sense of the different ways in which these communities understand and work with genetically modified Bt cotton seeds. The farmers consider a seed as ‘good’ only during harvest when its metamorphosis into a plant is clearly visible. They underscore the fact that good seeds are the ones that they are familiar with, which is often not the case with Bt cotton. Scientists in government regulatory bodies also point out the strict conditions that make a seed ideal—higher yield, endurance to biotic and abiotic stresses, stable germination rate, and resistance to pest attacks that have historically been a menace around cotton cultivation. Biotechnologists in the seed company, on the other hand, explain that in spite of the long years of arduous research, how difficult it is to produce the perfect hybrid because of constantly emerging environmental challenges. Within this breadth of the unknown and the unfinished, the seed emerges as a polysemous object that ropes in multiple people, agricultural histories, and political quandaries within its fold. The paper is an exploration into fragments of meanings of the genetically modified seed that I gather through my ethnography which often interweaves distinctive ideas of the environment and agriculture, as well as, a theoretical experiment to comprehend this curious object through the lens of STS and Anthropology.

A Theory of Technology and the Nexus between Nature, Artificiality and Capitalocene Horacio Correa-Lucero, IESAC-Universidad Nacional de Quilmes

The presentation has two parts. The first presents a comprehensive theory of technology and artificiality; the second one, shows the split between nature and artificiality as constitutive of capitalism. Technologies will be understood as human creations/constructions, manifestations of artificiality emerging within the framework of particular social relations in a specific time-space. The intentions behind this creation/construction are key not only because they imply consciousness, but because they involve the crystallization within technologies of interests and values stemming from creative subjects (conscious aspects) but not fully belonging to them (unconscious aspects) and that have been adopted because of the historical situatedness of these subjects. In capitalist society both belonging to a given social class and personal self-identifications (developed throughout life resulting in its objectification in technical codes) are aspects of fundamental importance for analyzing the possibilities of design, limiting the contingency. On the other hand, following Jason Moore we sustain the split of nature and the artificial comes from the split of nature and capitalism. The paper argues the objectification of nature, constitutive of the commodification of the world and capitalocene, and linked to a conception of the world giving non-human beings a lack of sensitivity, is located at the very base of the disrespectful treatment of the environment. The paper results from a theoretical research on the principles of the split between nature and artificiality carried out during post-Doc studies and it contributes to STS theoretically explaining the connections between technology, artificiality and capitalocene.

“Governmentalities” of Conservation Science at the Advent of Drones: Situating an Emerging Technology Lisa Ann Avron, Cornell University

Conservation scientists are looking to widen their lens on the landscapes they seek to protect. Using Unmanned Aerial Systems (UAS) fitted with Geographic Information Systems (GIS), ecologists hope to hone their abilities to account for and render visible precious wildlife, as well as to better allocate resources for governing environments. UAS technologies are information generators. Their ability to enhance remote sensing for the more exact enumeration of species populations and their precision mapping capabilities are the defining features of what scientists see as their “revolutionary” potential. What can a close analysis of their development tell us about conservation science itself and its relationship to GIS technologies? What governing rationalities do these systems embody and express, and does an increase in the quantity and precision of ecological data in fact harbor the potential for a “revolutionary” shift in how conservation science orders environments? This article uses the example of the development of UAS by innovators at the University of Florida’s Unmanned Aerial Systems Research
Program (UASRP) to explore the rationalities undergirding the growing excitement for drone technologies in conservation practice and to understand the historical continuities these novel machines embody. Using the interpretive lens of "governmentalities," I argue that the impetus for and excitement about using UAS technology in this client relationship between the UASRP and St. Johns Water Management District stems, not from a paradigm shift in ecology, but from the ability of advanced information machines to entwine and help bring into being biopolitical and neoliberal rationalities, revealing a multi-dimensional understanding of the motivations and logics of contemporary conservation science.

Overcoming Typological Thinking and Reification: Local Varieties of Crops as a Biosocial Process Lev Jardón Barbolla, Centro de Investigaciones Interdisciplinarias en Ciencias y Humanidades, UNAM

At a time when we constantly read or hear warnings concerning the different levels of danger represented by the loss of agricultural diversity worldwide, local, native, traditional or improperly named "creole" varieties are becoming ever more important for agriculch and biological research. The distinction between native seeds (landraces) and commercial cultures (breeds) or improved seeds (hybrid or transgenic) is at the heart of attempts by agro-biotechnological business to expand its control of agriculture. Such a distinction is also at the centre of the actions undertaken by organizations and collectives trying to preserve existing diversity. Furthermore, big companies have promoted — with the support of governments around the world — ex situ conservation schemes touted as the solution to diversity loss. In this paper I argue that rather than being pervasive or natural, the distinction between improved or commercial seeds and native seeds is an historical product and implies a peculiar form of power-knowledge in which the eighteenth century's typological species is artificially perpetuated; in parallel the link between certain scientific activity and capitalist accumulation underlies the purpose of this distinction and promotes a power relationship through the discourse on modernity of improved seeds but, first and foremost, through the production process of these seeds. According to this process, peasants and peoples who have dedicated their lives to agriculture have constantly been looted of knowledge and products of their work as a consequence of the very his-torical process that has determined the emergence of the "native seed" concept: the accumulation of capital. This paper provides elements to analyse the relationship between native/traditional seeds and improved/cultured seeds, considering labour as the central factor, and establishing that the distinction does not reside in their stability or variability, but in the control of the evolutionary processes—the control of the social-natural metabolism—that gives rise to each one of them. This position implies a political commitment and an open challenge to the role of science in the landrace/commercial breed political struggle. The perpetuation of an out-dated pre-evolutionist essentialism could provide an open avenue for the alternative agriculture movements if they can generate a different discourse regarding agrobiodiversity, outside of the "stability trap".

Transnational Advocacy and the Future Anterior of Terminator Technologies Stephen Kingsley Scott, Harvard University, Department of Anthropology

In 2000, the UN Convention on Biological Diversity declared a global moratorium on the development of a controversial new agricultural biotechnology: genetic use restriction technologies (GURT's), or "terminator technologies" as they are infamously known. GURT's make use of recombinant DNA techniques to genetically engineer sterility in crops. The rationale is that the technology would help open up markets where intellectual property rights are weak or unenforced: with GURT's, property protections would be built into the very biology of plants. In 1998, life science giant Monsanto moved to acquire the seed company holding the first patent on the controversial technology. This was met with intense public opposition, spearheaded by advocacy organizations like the Rural Advancement Foundation International, the coiner of the "terminator" meme. In late 1999, just ahead of the CBD's declared moratorium, and citing concerns over mounting public opposition, Monsanto announced it would no longer pursue commercialization of the new technology. This paper looks at the work of transnational advocacy organizations in the run up to Monsanto's about-face and the CBD's public moratorium. How, I ask, did advocates' imagined futures of the terminator draw on dystopic socio-technical imaginaries to generate public outrage and uncertainty about GURT's? How did these dystopic speculations work to short-circuit the broader speculative logics upon which biocapital functions? In addressing these concerns this paper helps to rethinks the role of STS in tracing out technopolitical processes in which questions of truth and certainty are displaced by value-oriented problems of ethical sensitivity and the desirability of the conceivable.

Chair: Andrzej Wojciech Nowak, Philosophy Institute Adam Mickiewicz University

054. Sounding Worlds: Listening as Transformative STS I Traditional (Closed) Panel

9:00 to 10:30 am
Sheraton Boston: Floor 3 - Beacon E

This panel explores what emerges in terms of sonic qualities between life forms, whether human or nonhuman, elemental or ethereal. Taking life forms as open-ended and passing through each other, and somewhat following Helmreich's invitation to "sound" water and life (2016) and Ingold's idea that we are 'ensounded' (2011), we aim to explore how sounding might be possible and useful in making sense of worlds we make up both within and beyond science. Experienceing movement along water, air, carbon or oil shifts attention towards the ways, speeds, textures and intensities in which transformation occurs in passing or in a process of becoming something else. How might we attend our attention to hear the imperceptible or formless? Could we hear what a plant sounds like? How might it sound differently in the wind, in a pot and as it enters the laboratory? How might listening with plants be healing or transformative beyond their consumption? Nuancing ideas to reify hearing as a separate sense or as disciplined listening to identify sound itself or soundscapes and rather broadening the focus on forms and patterns in the acoustic milieu as relational, we invite papers attuned to (en)sounding as method and approach. Approaches that explore ways we hear in-between, mapping meaningful events, moments, affects 'tonorous archipelago' (Bonnet 2012) or "sound blocks" (Deleuze & Guattari 1980) are of particular interest. This can include research done through recording, playing an instrument or through any other means of attuning to acoustics as ways of both understanding and constituting lifeworlds.

Participants:

Sounding Data: Pedagogies of Sonification for STS Owen Marshall

This paper documents the development and teaching process for an undergade course in auditory display at the University of California - Davis. It surveys various practical approaches to turning data into sound, as well as their respective affordances for teaching Science & Technology Studies. Sonification is an increasingly important practice in diverse fields, ranging from gravitational wave research to protein crystallography. As such, it affords valuable cases for interrogating knowledge production practices and strategies of public engagement (Supper 2013, Volmar 2013). Alongside this important critical approach to sonic representation, however, runs a creative one. Broadly construing sonification, as well as "sondable" data, I report on efforts to involve students in explorations of data as musical score, instrument, performance, and improvisation. I further argue that sonic performance and heuristic listening offer useful pedagogical routes into discussions of embodied knowledge, ontological multiplicity, and the constitution of techno-scientific publics.

Listening, Materiality, and Uncertainty: Surface Noise in Phonographic Records Chen-Pang Yeang, University of
Playing with Low Voltages: The Interface and Instrumentality of Modular Synthesizers

Eliot Bates, City University Of New York Graduate Center

The past nine years has seen the unexpected growth of a transnational market for hardware modular synthesizers. This was an unexpected phenomenon, as the during the same period software designers created software simulations of analog synthesizers that are far cheaper, more portable, and more flexible than their hardware counterparts. While much of the technology builds upon designs manufactured since the 1960s, manufacturers today combine existing circuits in novel ways, often building flexible objects where the end use isn’t yet clearly understood, and hoping that in trade shows these meanings/uses might become more durable. Similarly, there are audible aesthetic differences in how end-users use synthesizers today, stemming from the way consumers become co-designers of unique systems that reflect their individuality and aesthetic preferences. In particular, there’s a more concerted effort now to challenge ontological borders between musical and non-musical sound, and indeed some users’ modular systems never get utilized for musical performances, being used instead for noise or data sonification. This paper builds on critical organology (Bates, Dolan) and STS theories and methods (Akrich, Pinch, Trocco, Simondon) to look at the relation between interface and instrumentality, extending this to consider how interfaces and physical instruments become social. It is based on ethnographic observation of two European festivals dedicated to modular synthesis, the first (Superbooth) in the context of a synthesizer trade show, the second (Sines and Squares) in the context of a university electroacoustic music event, and this is supplemented by research into the thriving online Eurorack community.

Chairs: Julie Iaplane, University of Ottawa
David Jaclin, University of Ottawa

Discussant: Stefan Helmreich, Massachusetts Institute of Technology (MIT)

055. Science-Making: Epistemic Authority, Scientific Knowledge and the Production of Meaning

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Beacon F

How is science made? What epistemic power is invested in its tools? This session looks to question the materiality and coherence of tools of science-making, and to investigate how scientific discourses come to produce narratives of coherence, consistency and truth. The Papers look at how such tools are mobilized in the making of normativity as connected to the colonial, white and hetero-cis-gender, and in forging meanings of worth and belonging. The first paper looks at questionnaires and the making of colonial and postcolonial social scientific knowledge. Though material, the questionnaire’s materiality is disappeared in making final studies that make claims to the normative and real. The “Roma Genome” is deployed as proof of ethnic belonging, a sign of health risk, a function of nomadic life and their product as well. Similarly, inheritance patterns of medical conditions, such as G6PD deficiency, have been used to evaluate contested narratives about Jewishness. How was G6PD deficiency suddenly adopted as a sign of ethnic belonging, a function of health risk, and in forging meanings of worth and belonging? How is a disease, and indeed some users’ modular systems never get utilized for musical performances, being used instead for noise or data sonification. This paper builds on critical organology (Bates, Dolan) and STS theories and methods (Akrich, Pinch, Trocco, Simondon) to look at the relation between interface and instrumentality, extending this to consider how interfaces and physical instruments become social. It is based on ethnographic observation of two European festivals dedicated to modular synthesis, the first (Superbooth) in the context of a synthesizer trade show, the second (Sines and Squares) in the context of a university electroacoustic music event, and this is supplemented by research into the thriving online Eurorack community.

Participants:

Enzymatic Genealogies: Historical Narratives of G6PD Deficiency in the Middle East
Elise K Burton, University of Cambridge

This paper considers the human enzyme glucose-6-phosphate dehydrogenase (G6PD), focusing on the medical and social significance of its presence or absence within different Middle Eastern populations. G6PD deficiency, an inherited condition resulting in abnormally low levels of the enzyme, occurs with high frequency among Middle Eastern populations. Affected individuals have severe hemolytic reactions to certain antimalarial medications, infections, or foods, notably fava beans (hence, “favism”). However, G6PD deficiency quickly took on not only a clinical but also anthropological significance, because the frequency of the condition often varies dramatically between groups divided by social factors like religion, language, or tribal affiliation. Using scientific publications, personal correspondence, and oral histories, I argue that during the 1950s, medical researchers in Israel and Iran transformed G6PD into an epistemic tool to project contemporary ethnoreligious identities deep into the past and legitimate nationalist visions of Jewish and Iranian history. Israeli scientists, members of the new state’s Ashkenazi sociopolitical elite, identified this enzyme deficiency as an ethnic condition occurring only in “non-Ashkenazi” Jews, i.e. the marginalized Jewish immigrants from the Middle Eastern diaspora. In Iran, physicians found that the deficiency occurred within the normative population—the Persian-speaking Shi’ite Muslim majority—while religious minorities like Zoroastrians and Armenians had standard levels of the enzyme. They explained this pattern of distribution by drawing on Pahlavi-era nationalist historiographies that cast Zoroastrians as the last living representatives of the “original” gene pool of the ancient Persians prior to the Arab-Muslim conquests, which had been contaminated by foreign invaders.

Protection against honeybees: intimacy, technoscience and environment in the history of beekeeping
Angelica Marquez-Osuna, Harvard University

By looking at the contemporary history of the protective gear that beekeepers have adapted since the mid-nineteenth to the twentieth centuries, I aim to illustrate the practices of intimacy between this peculiar community of experts and bees. Nowadays, the white beekeeping suit and veil seem to be a standardized equipment around the world. However, it is something relatively new in tropical areas in Latin America where native honeybees are less aggressive. The protective gear became popular since the mid-nineteenth century, with the industrialization of the agrarian context, and the spread of apiculture as a productive and modern practice. I argue that this transformation was part of a broader
Sexuality and the Social Object in Colonial India

This paper explores the questionnaire (also termed the survey) as a critical tool that became foundational to the early social sciences in colonial India. The questionnaire is an epistemic artifact that complicates notions of gender, race, and nature. It serves as a means to examine how the analysis of technological artifacts might inform our understanding of colonial processes of social practices, where the everyday was represented through detailed inquiries into normative kinship structures and reproductive marriage. Through a reading of the content, structure, and physical travel of the survey, the paper explores two elusive objects of the early social sciences in India: the material history of the questionnaire and the production of the social itself as a bounded object of scientific analysis.

Optics of Recognition: The Calibration of Genetic and Cultural Difference in Roma Population Genetics

Over the last two decades, there has been a flurry of interest in Roma/Gypsy genetics, most often linked to efforts to characterize the Roma genome and in recognizing Roma culture. Thus, Roma culture is not just being mapped onto a biologized understanding of Roma membership; instead, in the practices of Roma genomics we see the co-production of tools and forms of valuation and hierarchicization of the types, qualities, and magnitudes of differences that can and should count both in characterizing the Roma genome and in recognizing Roma culture. This paper engages scholarship on anticipatory futures and cyborg subjectivity through an ethnographic study of rehabilitative care for people with disabilities in Germany. Since 2014, a robotic exoskeleton, which was originally developed in Japan to assist with the mobility of the aged, has been used in physical therapy for persons recovering from strokes and spinal cord injuries in Germany. The exoskeleton amplifies neuromuscular signals weakened by injury enough that a user can move a limb beyond what is possible without assistance. Over time repeated training with the exoskeleton contributes to a therapeutic effect: the enhancement of natural, unassisted mobility. While the transient human-machine assemblage of these training sessions—a person who moves only with the help of technology that is itself actualized only by sensing the attempted movement of the person wearing it—at once complicates notions of bounded subjectivity, the paper argues that machine-supported training is undergirded just as significantly by complementary attachments to anticipatory futures. Patients strive not for a cure but for an incrementally more mobile self; therapists hope for better care with more functional machines; manufacturers convert the limitations of current devices into promises for more capable “next versions.”

Participants:

Anticipating Iteration: Sensing Machines and Disabled Bodies in Germany

Shawn Bender, Dickinson College

This paper engages scholarship on anticipatory futures and cyborg subjectivity through an ethnographic study of rehabilitative care for people with disabilities in Germany. Since 2014, a robotic exoskeleton, which was originally developed in Japan to assist with the mobility of the aged, has been used in physical therapy for persons recovering from strokes and spinal cord injuries in Germany. The exoskeleton amplifies neuromuscular signals weakened by injury enough that a user can move a limb beyond what is possible without assistance. Over time repeated training with the exoskeleton contributes to a therapeutic effect: the enhancement of natural, unassisted mobility. While the transient human-machine assemblage of these training sessions—a person who moves only with the help of technology that is itself actualized only by sensing the attempted movement of the person wearing it—at once complicates notions of bounded subjectivity, the paper argues that machine-supported training is undergirded just as significantly by complementary attachments to anticipatory futures. Patients strive not for a cure but for an incrementally more mobile self; therapists hope for better care with more functional machines; manufacturers convert the limitations of current devices into promises for more capable “next versions.”

Participants:

Anticipating Iteration: Sensing Machines and Disabled Bodies in Germany

Shawn Bender, Dickinson College
human and machine, and perhaps characterizes contemporary engagements with digital technology more broadly.

Making Sense of Pain: Running and Cycling through Modes of Dis-/Entanglement

Robin Rae; Samuel Haraway, University Of California Davis

This paper explores the dis-/entangling of bodies and technologies in sport through movement. At the center of attention lies the iterative change and re-adjustment of body-technology relations in running and cycling, and how the sense of pain serves as both cause for changing and means of sensing that relation. Being in such materially coordinated movement is essential to not only corporeally sense pain, but to learn making sense of pain, and how various entities contribute by intensifying or reducing it. Yet part of that sense making is getting to know which pains can and ought to be remedied or endured in performing these sports. Making sense of pain in movement then involves shifting through varying degrees of dis-/entanglement with technologies over time in practice. Two case studies are contrasted wherein bodies and technologies are re-aligned in a laboratory-like setting to (re-)gain comfort and ‘efficiency’. Yet the cases show seemingly opposed vectors of dis-/entanglement, mediated by an instructor, further artifacts, and pain. In the case of ‘natural running’ the disentanglement of body and (conventional) running shoes is foregrounded to revert to a motion lessening the contribution of technology, while relying on it in the process. In contrast, ‘bike fitting’ aims at entangling body and bicycle by adjusting each to the other’s material properties, both of which are subject to ongoing change. In either case affected senses like pain require time to adapt. Previous alignments of body and technology are, while absent, present in muscle memory and sensory experiences of dis-/entanglements.

Squeeze, Thud, Flow, Release – The Entangled Becoming of Bodies in Egg Donation

Matthijs Lykkebo Petersen, University of Southern Denmark, Department for the Study of Culture

Combining a new materialist framework (Barad 2007) with a sensory ethnographic approach (Pink 2015; Vannini, Waskul, and Gottschalk 2012), I explore how women, who donate egg cells for other women’s fertility treatments, experience the becoming of their ‘egg donor bodies’ through specific clinical practices of bodily and technological entanglements that invoke specific bodily sensations and (re)actions. Drawing from Barad’s understanding of entanglement as the inseparability of material/discursive/human/non-human agential ‘components’ within phenomena, I argue that specific body-technology entanglements – in this case doing egg donor – becomes tangible and sensorial intelligible as meaningful bodily experiences through specific bodily movements. Based on empirical material from a sensory ethnographic field study on egg donation in Danish fertility clinics, I investigate how egg donor bodies are being moved and enabled through specific bodily movements such as specific postures in a gynaecology chair, tension of muscles, breathing rhythms, and more autonomic and inert bodily movements such as pulse, blood circulation, and movement/flexibility of inner organs. Bodily movements that constitute the process of extracting the egg cells from the ovaries, ‘disentangling’ the eggs, or in Barad’s terms understood as an ‘agential cut’, which allow for local separation within a phenomenon. In this sense the specific bodily movements enable specific bodies to become egg donor bodies through specific sensory experiences. This paper contributes to the field of feminist STS by exploring and discussing methodological approaches of empirical ethnographical work with body-technology (dis-)entanglements in clinical settings.

Use of Mediating Technologies in Authentic Movement

Elena Sokolova, Institute of Ethnology and Anthropology, Russian Academy of Sciences

This paper examines application of digital technologies by practitioners of authentic movement, a contemporary movement discipline. In addition to a person who moves, authentic movement presupposes a specific role of a witness and therefore her skills, such as mindful observation of self and others, translation of different types of experiences, providing feedback, etc. In classic formats of the discipline, witnessing happens in real-time. However, in some cases, practitioners go for experiments with photo and video. For the bravest and artistic, private work with materials also extends to public space of social networks. In my ethnographic research in Russia I found multiple examples of mediated experience, which can bring back a practitioner back to sensory memory of a particular moment and repeat it. This mediation can enrich the experience of the inner witness by bringing a different perspective. It makes it possible to observe a collective body. It can be an art or a marketing tool offering a virtual test to a broader audience. Specific reflexive methods of authentic movement make the audience a resourceful field to explore technological mediation of bodily and sensory matters. Though, I argue that the ethnographer should stand “apart, capitalized, in heroic singularity” (Stocking 1983) studying the others: I believe that in addition to interviews and classic observation methods, as well as big data analysis, actual participation and auto-ethnography are valuable methods in STS research.

Chair: Samuel Haraway, University Of California Davis

057. Together again? New Perspectives on STS and Innovation Studies

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Beacon H

From the early inception of the field, sociotechnical innovation has been of key interest to STS scholars. However, STS now finds itself a rather marginal expert authority on innovation, while economics and science policy studies have internalised their own definitions, forms of expertise, and claims to epistemic authority with regard to that topic. The aim of this panel is to take stock of – and as necessary boost - the standing of innovation within STS and build a stronger and more coherent communal appreciation of what STS analyses have to gain by, and offer to, the topic. Furthermore, we seek to reflect on the field of Innovation Studies (IS) and its past, current and possible future relationship to developments within STS. The panel more specifically brings together paper presentations offering novel empirical and conceptual insights on innovation and provides an opportunity to reflect upon some key lessons for further work in this field. Whilst it is very possible to identify a long period of estrangement between Innovation Studies and STS, it is also important to win empirical and conceptual work which specifically aims to interconnect the fields. However, and as the session will discuss, this may require some re-thinking of current directions in both STS and IS and also necessitate new consideration of the nature, direction and purposes of ‘innovation’, and the relationship between this and both privately and publicly funded research.

Participants:

Tensions in the pursuit of “health and wealth”: Innovation accelerator agencies & Regenerative Medicine

John Grant Gardner, Monash University, Australia

In several countries such as the UK, USA and Canada, governments have established specialist innovation-accelerator agencies in an attempt to foster the emergence of a ‘health and wealth’ generating Regenerative Medicine (RM) industry. These agencies are at least partially publicly funded, often described as business-led, and intended to facilitate the commercialisation of RM products and procedures. As a case study, this presentation explores the activities of the UK’s Cell and Gene Therapy Catapult (CGTC). The presentation will illustrate the ways in which the CGTC attempts to steer what may otherwise be dispersed, heterogeneous, and uncoordinated research and clinical activity into particular paths of RM commercialisation aimed at generating economic value. Drawing on Jasanoﬀ and Kim’s (2009) notion of socio-technical imaginaries, I suggest that RM innovation-accelerator agencies can be seen as points at which promissory expectations, multiple actors and expertise,
How did we grow apart? Robin Williams, The University of Edinburgh

The paper starts by exploring the complex relationship between what are currently described as Science and Technology Studies (STS) and Innovation Studies (IS). In their earliest stages, the boundaries between these two traditions were extremely porous. In the UK at least there has been a sustained interaction between STS and IS. However, the two communities regarded each other with mutual suspicion and largely ignored one another, with a bare handful of researchers operating with a foot in both camps. However, in the 1990s, beginning in the Netherlands and then spreading, there was renewed interaction centred around work on innovation for sustainability, strategic niche management, the multi-level perspective and sociotechnical transitions. These developments illustrate the potential benefits of stronger interaction between STS and SPIS. Having examined the evolving relationship between STS and SPIS, this paper then attempts to identify other themes around which the STS and SPIS communities might work fruitfully together over coming decades.

How did we grow apart? Robin Williams, The University of Edinburgh

The evolving relationship between STS and science policy and innovation studies (SPIS) Ben Martin, SPRU University of Sussex

The role of STS scholars with regard to sociotechnical transition needs to be set in historical context. In particular, we need to examine the evolving relationship between STS and the “neighbouring” field of science policy and innovation studies. The fields of science studies and science policy (as they were each then known) emerged at about the same time around the mid-1960s, and for the first ten years or so there were close relations. However, the two fields then drifted apart as they each developed their own research agenda, journals, conferences and PhD programmes. For much of the period up to the mid-1990s, the two communities regarded each other with mutual suspicion and largely ignored one another, with a bare handful of researchers operating with a foot in both camps. However, in the 1990s, beginning in the Netherlands and then spreading, there was renewed interaction centred around work on innovation for sustainability, strategic niche management, the multi-level perspective and sociotechnical transitions. These developments illustrate the potential benefits of stronger interaction between STS and SPIS. Having examined the evolving relationship between STS and SPIS, this paper then attempts to identify other themes around which the STS and SPIS communities might work fruitfully together over coming decades.

How did we grow apart? Robin Williams, The University of Edinburgh

R&D collaboration in a post-linear context: The role of publicly funded research in the private sector Jane Vedel, Copenhagen Business School

In this paper, I explore how industrial managers view the value of publicly funded research. In current Danish and European policy discourse, the value of publicly funded research for the private sector, and society more broadly, is characteristically explained in linear and economic terms. For example, we often hear that the main role of publicly funded research is to spark increased innovation in the private sector and to stimulate growth and job creation in society. But what do industrial managers themselves think about publicly funded research? How do they explain its value to their business development? Do they simply think that the merit of publicly funded research is to provide a direct measurable input to industry? Or do they consider that there is more to this role than policy seems to assume? Based on 53 qualitative interviews with industrial managers across six companies, this paper finds that industrial managers sometimes explain the role of publicly funded research as to “support business directly” but also think that publicly funded research has an important role in bringing “something different” than business and providing “future capacity”. When making these arguments they sometimes invoke a linear model of innovation but also draw on what can be termed ‘post-linear’ models. Consequently, we see a potential for rethinking policy by reflecting upon these wider industrial perspectives and shifting ideas of innovation.

Chair: Alan Irwin, Copenhagen Business School
Discussant: Alan Irwin, Copenhagen Business School

058. Making Sense of Autonomous Technologies I: Interrogating Autonomy and the Politics of Technology

Ingelmo Casas, University of Sussex

Autonomous technologies are reshaping human society. In the past two decades, consumer technologies such as smartphones and consumer robotics have become central to our everyday lives. Simultaneously, military and industrial developmental efforts have led to the development of autonomous technologies, ranging from self-driving cars to killer drones. This panel examines how the politics of autonomous technologies are shaped in different contexts.

Discussant: Alan Irwin, Copenhagen Business School

059. Making Sense of Autonomous Technologies II: Interrogating Autonomy and the Politics of Technology

Ingelmo Casas, University of Sussex

Autonomous technologies are reshaping human society. In the past two decades, consumer technologies such as smartphones and consumer robotics have become central to our everyday lives. Simultaneously, military and industrial developmental efforts have led to the development of autonomous technologies, ranging from self-driving cars to killer drones. This panel examines how the politics of autonomous technologies are shaped in different contexts.

Discussion: Alan Irwin, Copenhagen Business School
participants.

Do Algorithms Have Cosmopolitics? A Discussion Based on Autonomous for What? Big Data, AI and the Problem of Tecno- Politics seems to have had an ever lingering role in the way in which the UN debates draw upon the same threads that motivated concerns over technology 40 years ago. It will also consider the extent to which these debates are more new or different from previous concerns. It will also consider the conception of “meaningful human control” and its possible precursors in Winner’s work. The author has been involved in both the academic and diplomatic debates over AWS, and aims to expand our understanding of this contemporary issue by revisiting Winner’s landmark work. Central to the UN debate has been competing definitions and understandings of what constitutes “control” over technology, and what ways a weapon systems might go “out-of-control.” This fuels competing notions of what an “autonomous”, or “fully autonomous,” technology might be, or even if such a thing is possible.

Chair: Colin Garvey, RPI
Discussant: Langdon Winner

059. Gender in Academia I: Struggling for Gender Balance
Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Clarendon

STS, in particular feminist technoscience studies, has long been concerned with the co-production of gender with various aspects of technoscience, including the analysis of the (im)balance in technoscientific institutions. This panel calls for papers that analyse gender (im)balance in technoscientific institutions. It will also consider the concept of "meaningful human control" and its influence on the development of Autonomous Weapons Systems (AWS). It will also consider the ways in which the concerns over AWS are new or different from previous concerns. It will also consider the extent to which current UN debates focus on the same threads that motivated concerns over technology 40 years ago. It will also consider the extent to which these debates are more new or different from previous concerns. It will also consider the conception of “meaningful human control” and its possible precursors in Winner’s work. The author has been involved in both the academic and diplomatic debates over AWS, and aims to expand our understanding of this contemporary issue by revisiting Winner’s landmark work. Central to the UN debate has been competing definitions and understandings of what constitutes “control” over technology, and what ways a weapon systems might go “out-of-control.” This fuels competing notions of what an “autonomous”, or “fully autonomous,” technology might be, or even if such a thing is possible.

Chair: Colin Garvey, RPI
Discussant: Langdon Winner
Interdisciplinary Studies Of Culture
Short abstract: This paper describes the complex and diverse pattern of changes in the gender balance among university professors over time and across departments. Long abstract: The issue of gender balance among university professors is receiving increased attention among policy-makers, eminently visible in the EU Horizon 2020 program. Research in the area is abundant, but the widespread use of metaphors like ‘glass ceiling’ and “leaking pipeline” reflects a strong tendency to treat the problem of gender imbalance in the academic system as a generic phenomenon, in particular in the STEM discipline. Feminist technoscience also tends to frame the issue in general terms as one of exclusion. In this paper, we analyze the percentage of women professors at the level of faculties and departments at the Norwegian University of Science and Technology (Norway’s largest university) at three points in time; 2004, 2009, and 2014. Thus, we explore temporal changes as well as disciplinary dynamics. Our findings show that at the level of the university, there is a slow growth but when we look at departments, we observe a much more complicated pattern. Some departments have quite large increases in the percentage of women professors, other have slow or no change, and a few even experience a decrease. Departments with a low percentage of women are found in most faculties. This shows that the issue of gender balance to a considerable extent is linked to disciplinary and departmental features, which improves the understanding of gender balance dynamics in feminist technoscience and STS.

Managing Gender Balance: How Heads of Departments Deal with Challenges of Equal Opportunities Siri Øyslebø Sørensen, Norwegian University of Science & Technology (NTNU)
Short abstract: This paper explores how heads of departments at the largest university in Norway perceive and practice their role and responsibility with regard to creating gender balance amongst faculty members, and in equal career opportunities for young researchers. Thus, it contributes new insights to feminist technoscience and STS. Long abstract: Heads of departments are pointed out as key actors in creating gender balance in academia, and in principle, they are well placed to develop and implement strategies for improving the gender balance among the faculty: department heads exercise considerable influence with respect to hiring policies, distribution of tasks and resources, and the work environment. Still, science studies as well as research into gender balance issues at universities have largely neglected the role of department heads. In this paper, we study how heads of departments manage the issue of gender balance. We draw on a survey and a set of qualitative interviews among heads of departments at Norway’s largest university. We explore how the department heads perceive their role and responsibility, how they understand the gender balance issues, what instruments that they have been using (or not), and what goals they have with regard to the gender balance among professors at the department. Our findings show considerable diversity with respect to all these concerns, which is related to the actual gender balance. Heads of departments where the gender balance is fairly good, report using instruments to improve the gender balance more frequently than where there is strong gender imbalance. Furthermore, we identify ambiguity regarding academic and administrative leadership, suggesting the need for and potential of clarifying the role of heads of departments in creating gender balance. The analysis of heads of departments also adds new insights to STS more generally, since this is an understudied part of the academic system.

Gender Issues in a Newly Formed Departmental Committee on Diversity in Physics Mirjam Fines-Neuschild, Université de Montréal
Feminist epistemologists claim that only diverse groups can achieve an objective research (Harding 1986). In practice, however, some issues can occur while trying to consider everyone’s perspective. In the context of the present wave of consciousness of STEM fields toward women’s underrepresentation (Hills & al. 2010), I will present the genesis and operations of a departmental committee formed to address issues of diversity in physics. As an academic discipline, physics is still characterised by its racial (white) and sexual (male) homogeneity (APS 2016). The North American committee studied was launched in September 2015, after a year of discussion and surveys on its future orientations and purposes. Whenever gender issues are raised, they seem to be diluted in favor of broader considerations of diversity. I will describe the situation and propose potential explanations. What does this example tell us about the fruitfulness of STEM initiatives for addressing gender balance in an organizational culture that is neither hostile, nor inclusive? I will draw on data consisting of observational notes, meeting minutes and the results of a departmental survey. As both an ethnographer and a member of the physics community, having a double membership gave me an interesting viewpoint for this study. Contributions to STS include: innovative ethnography in lab studies and STS, new perspectives on gender issues in science, and research that seeks to merge STEM fields and feminist epistemologies. APS. (2017). Women in Physics Statistics. Retrieved February 27, 2017, from http://www.aps.org/programs/women/resources/statistics.cfm Harding, S. (1986). The Instability of the Analytical Categories of Feminist Theory. Signs: Journal of Women in Culture and Society, 11(4), 645-684. https://doi.org/10.1086/494270 Hill, C., Corbett, C., & St. Rose, A. (2010). Why So Few? Women in Science, Technology, Engineering, and Mathematics. American Association of University Women. Retrieved from https://eric.ed.gov/?id=ED509653

Becoming a University Professor: Men and Women’s Strategies Vivian Anette Lagesen, NTNU
Short abstract: On the basis of qualitative interviews, this paper analyses the processes of becoming a professor, comparing men and women across many different disciplines. Long abstract: While much research has been concerned with how women are excluded from academic careers (Etzkowitz et al. 2000, Zuckerman et al. 1991) this paper focuses upon the processes of inclusion at work to men and women succeeding in academia. It does so by analyzing men and women professors’ strategies for becoming professors, and their accounts of the contingencies of these strategies related to gender and academic culture. It shows how men and women full professors describe their own ‘autobiographies’ related to their academic career, and the kind of narratives they construct to account for this achievement. To think in terms of becoming processes is to analyzing structure and order as they emerge as landmarks or barriers but not as pre-given limitations. Thus, a focus on becoming processes may be understood as positioning and repositioning oneself with regard to activities, competences, norms, etc. by trying to subvert efforts of normalizing discipline (Braidotti 1994). Such a perspective seeks to overcome the structural-agency tension in much research regarding gender in academia (Wullum-Nielsen 2014). Our data consist of qualitative interviews with 30 women and 10 men professors from different academic disciplines. The findings show the need to transcend the dichotomies employed in much feminist techno-science, not only the gender binary but also the assumed differences between STEM-disciplines and social sciences/humanities. The paper also contributes more broadly to STS by developing the concept of becoming as a way of analyzing academic careers.

Science Laboratories: Understanding the Relationship of Gender and Science Chandni Dipak Vadhavana, Central University of Gujarat
The paper explores how contemporary studies in the field of Science, Technology and Society Studies (STS) and Feminist Science Studies have brought into light gender-based discrimination in Natural Sciences. However, the question becomes much more complex as socio-cultural and political surrounding plays a prominent role in the construction of hierarchical and institutionalized system of science. In this relation, the paper elaborates on the limitations of quantitative
analysis and understands how everyday working of science laboratories takes into account the networking and informal conversations among researchers and scientists, institutional systems of laboratory practices, and organizational structure. In addition, the paper includes experience and narrative of women in science through participant observation, which enables a deeper analysis in addressing the problem in the larger domain of gender and science. Although, there is a constant shift from reductionist to contextualize mode of engagements and efforts have been made for an inclusive and sustainable democratization of science. Notwithstanding, to reflect on the present model of autonomous science institution and the theory of merit the paper tries to figure out the role that it plays in enrollment and recruitment of marginal section in general and women in particular.

Chairs:
Knut H Sorensen, NTNU, Dept. Of Interdisciplinary Studies Of Culture
Vivian Anette Lagesen, NTNU

060. Antecedents, Interventions and Post-Truth Politics: The Performance and Politicization of Climate Science and Market Fundamentalism

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Commonwealth

Science and Technology Studies is well-placed to comment on public discussions about post-truth that tend to affirm the notion that an uncontaminated truth exists prior to its mobilization in politics. STS, of course, complicates this view by contending that what is understood as truth is conditioned by historical and social contexts and that science is unavoidably political. This panel contributes to interventions into post-truth politics by considering what can be learned from the history of neoliberalism and the politicization and performance of the climate sciences. The panel examines how truth emerges from specific mobilizations, performances and configurations of politics and knowledge. We pay particular attention to the resonances and overlaps between discourses of climate change and post-truth, and situate both within a broader framework of the history of neoliberal ideology of market fundamentalism. In this way, by exploring the history, sociology and anthropology of the political-economy and performances of climate science, the panel offers productive ways to engage with post-truth.

Participants:
Historicizing Post-Truth: Possible Contributions to a Critique of Populism Naomi Oreskes, Harvard University - History of Science

Given the recent upsurge in public discussion about the politics of truth-claims that is fostered by the neologism of ‘post-truth’, this paper considers what can be gleaned from the history of science to help illuminate theorizations of populism, post-truth and the current US administration. More specifically, the paper relates the history of pro-market, anti-regulation arguments that leveraged scientific discourse to make political claims about the ownership of electric utilities and climate change. The paper then considers how political theories of populism and discourses of post-truth are applied to the politics of the current US administration. Discussions of post-truth politics suggest that novel political strategies are being deployed; rather than simply lying to cover-up a truth that politicians do not want publicized, post-truth politics are said to involve the deliberate fabrication of narratives that are designed to resonate with the emotions of target audiences. In this way, post-truth politics are related to populism and the creation of a supposedly unified people in whose name populist leaders assume authority. The history of science provides examples of previous articulations of such strategies. The history of science, moreover, can be mobilized to formulate a progressive politics. Instead of re-inscribing hard lines between facts and values, scientists and social-scientists, could articulate public arguments in terms of values. An important value in such conversations is the democratic ideal of respect for differences, rather than the populist unification of a people without differences.

Techniques of Resilience and Resistance in International Climate Policy Jessica O’Reilly, Indiana University Bloomington

The annual Conference of Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC) is a massive climate spectacle, drawing together governmental negotiators, scientists, climate-related NGO personnel, and activists for a two-week conference. This paper compares the performance of climate policy, action, and advocacy that come close to, but rarely enter into, the formal diplomatic event. This analysis will focus on COP22, held in Marrakech during the 2016 US Presidential election, and the attempts at institutional resistance and resilience among climate scientists, policy makers, and advocates in the immediate aftermath of the election; making this ethnographic site temporary and ephemeral, as well as planned and managed. Therefore, this paper considers the ways in which performance of climate change at the UNFCCC meetings contributes to the negotiations as well as how the spaces, in the gradations of public, official, and closed, manages to permit performance while simultaneously excluding it from formal climate negotiations. The vast, diverse, and energetic spectacle of climate change at UNFCCC meetings then, performs two gestures: 1) an outward-gazing message to perceived global audiences, and 2) a stance of marginalized inclusion, in which pluralities of performance are encouraged with little substantive interaction with the inner workings of formal international climate diplomacy. The meetings, as temporary orderings of the space and as a regulated community whose entrance requires permission, can enable institutional resilience as well as resistance to the degree participants enact it.

Hell is Truth Seen Too Late Philip Mirowski, Univ. of Notre Dame

The contemporary literature on neoliberalism has grown so large as to be unwieldy. For some, this portends a worrisome lack of intellectual discipline; for others on the left, this has presented an occasion to denounce it altogether. The purpose of this talk is to analyze some of the reasons for the spreading disaffection. One of the most notable aspects of the literature is the unwillingness to approach neoliberalism first and foremost as a set of epistemological precepts recruited in service of a political program. Marxists in particular find this proposition an anathema—and there are important reasons this has been repressed in the ensuing discussions. I conclude by suggesting the importance of epistemology is not simply some abstract thesis, but has had dire consequences in at least three recent political battles: the post-election fascination with ‘fake news’; and the impending Uberization of modern science, and the resulting anguish of how to deal with the new Trump denialism.

The Mediatization of Arctic Change: The Performance and Politics of Near-real-time Sea Ice Data Visualizations Mark Vardy, Princeton University

Every morning, the National Snow and Ice Data Centre's (NSIDC) in Boulder Colorado automatically ingests NASA data from earth-observation satellites. The Arctic Sea Ice News & Analysis (ASINA) team uses a fraction of this data to produce publicly available visualizations of sea ice. The daily updated visualizations are a collective socio-technical accomplishment that the ASINA team interprets, within the long-term satellite record, as indicators of climate change impacts. The images have an iconic status and, particularly during the annual sea ice minimum, are widely circulated online, in print media and in policy discourses. The US administration has signalled an intent to cancel NASA’s earth-observation and climate change programs, throwing the future of the sea ice visualizations into question. This paper presents findings from ongoing ethnographic observations and qualitative interviews with the ASINA team, which includes software developers, data operators, data managers, communication specialists, and scientists. The paper outlines the ways in which the ASINA team is responsive to the material conditions of data and arctic sea,
as well as the social and political contexts of their work. I argue that the near-real-time mediatization of sea ice offers ways to think the performance of climate science and politics in novel and non-reductive terms, and that it is this potential for progressive response to climate change that is undermined by the US administration.

Chair: 
Mark Vardy, Princeton University

061. Academic Evaluation in an Age of "Post Truth" I: "Issues"  
Traditional (Closed) Panel  
9:00 to 10:30 am  
Sheraton Boston: Floor 3 - Dalton 

STS has made major contributions in respecifying the key concept of "values". We can no longer take for granted that values are given or that they straightforwardly determine action. We know instead how much is involved in making, articulating, enacting and manipulating values. In academic work, such practices abound: we know that determinations of academic value involve contingent practices of evaluating, rating and ranking performance. What are the implications of this understanding of academic evaluation in the contemporary situation, where standards of truth are allegedly undergoing significant modification? In a situation of "post truth" (nominated as OD's new word of 2016) what contributions can STS make to understandings of the phenomenon which so close to home? Is this simply to replay the same argument from a new perspective? Can STS make interventions that can make a difference? This panel invites papers which address the practices and transformations of academic evaluation in the age of post truth. These practices include, but extend considerably beyond, the use of diverse metrics and indicators. For example, the panel invites discussion of peer reviewing, grant proposal assessments, paper grading, appointments and promotions, awards and prizes, book endorsements and other professional practices. We welcome papers which discuss more (or less) appropriate future modes of academic evaluation.

Participants:

The Reproducibility Crisis and Its Critics: Scientists’ Evaluations of the Stability of their Findings Nicole C Nelson, University Of Wisconsin-Madison

The reproducibility crisis seems emblematic of the post-truth era—in fields as diverse as oncology, psychology, and economics, researchers are reporting that their published findings seem to be less stable than once believed. Some systematic efforts to replicate findings in psychology have concluded that the majority of published findings cannot be reproduced. As one controversial reporter put it in a New Yorker article, “It’s as if our facts were losing their truth.” This paper examines counter-arguments to the reproducibility crisis, launched by scientists who argue that their fellow practitioners should not expect all findings to replicate in all ways. In particular, I will examine an argument advanced by a group of psychologists from New York that some findings may be more “contextually sensitive” than others, and therefore should not be expected to replicated in the same way as other findings. They argue, for example, that context “should be expected to be largely irrelevant” for studies on visual statistical learning, but “was expected to have a significant impact” on research on the ultimate sampling dilemma (Bavel et al 2016). Examining researchers’ assessments of what facts they expect to be stable in what ways offers insight into their epistemological assumptions. The reproducibility crisis may at first appear to be grounded in naively realist beliefs about the nature of scientific findings: that scientific facts should hold true in all places and times; when they do not, misconduct or fraud must be to blame. But the alternative evaluations of the situation made by critics suggest that the epistemological terrain of psychology is more varied: these practitioners held that something may be a fact and be bound to a particular culture or moment in time. This analysis suggests that we would benefit from attending to the epistemological assumptions underlying discussions about the post-truth era more broadly to understand what kinds of facts various parties believe we are losing.

Below the By-line: The Curious Practice of Evaluating Career ‘Trajectories’ in Academic Biomedicine Björn Hummertet, University of Borås; Alex Rushforth, University of Oxford; Sarah de Rijcke, Centre for Science and Technology Studies (CWTS)

This paper builds on emerging concerns with how temporality unfolds in, and orders, academic evaluation practices (Vostal 2016, Ylioki 2016). In particular we unpack how the notion of ‘trajectory’ - a simultaneously prospective and retrospective narrative form permeating contemporary academic life (Felt 2017) – is mobilized within a particular evaluation site. Materials for our study are drawn from reports commissioned by four major Swedish universities when hiring academic staff. These texts are authored by external referees hired to rank and compare candidates, in this case for positions of associate and full professors in biomedicine. We explore how the referee reports mobilize ‘trajectories’ as a central narrative device for weaving together disparate bits of ‘evidence’ extracted from the bylines of biomedical CVs: publication numbers, impact factors, authorship positions, ‘earning power’, and teaching and administrative records. Our analysis finds certain resemblances of what constitutes an ideal candidate’s career trajectory across reports, but none are completely identical. As such, we consider how ‘the trajectory’ is evoked as a singularity within this genre of writing, thereby bestowing retrospectively a sense of coherence and purpose (c.f. Garforth and Cervinková 2009, 175) on the past performance and prospective development of careers in academic biomedicine. We end by discussing the implications of our findings on trajectoryism and temporality for discussions about the orders of worth supposedly shaping contemporary academic biomedicine.

Peer Review in Mathematics: Degrees of Correctness? Christian Greiffenhagen, The Chinese University of Hong Kong

Although there have been a number of studies that have explored the processes of peer review, for example, in the arts and humanities (Lamont, 2009) and sociology (Hirschauer, 2010), there have been no detailed studies of peer review in mathematics. This paper is based on more than 80 qualitative interviews with editors of mathematics journals from different ‘levels’ in the perceived hierarchy of journals. The interviews focused on the process of peer review, in particular, the underlying values and the role of trust involved in making judgements. This paper respecifies our understanding of mathematical certainty as admitting ‘degrees of correctness’. While it is often claimed that ‘in principle’ it should be possible to check the correctness of mathematical results, mathematicians acknowledge that ‘in practice’ this is difficult to do and that almost every published paper contains mistakes. Not only do proofs contain ‘gaps’, i.e., steps that are not spelt out in every detail, furthermore, many proofs are very difficult to understand – and therefore to check. This paper investigates how mathematicians deal with this tension between the ideal of absolute certainty and the reality of not being able to verify correctness during the peer review process. It focuses in particular on the way that the peer review process is organized in mathematics (many journals have introduced a two-step process, asking first for several ‘quick opinions’, but then only asking for one ‘detailed report’) and the differences between journals from different ‘levels’ in the perceived hierarchy of journals.

Resistance, Opportunism, or Something Else? Gaming and Manipulation of Academic Metrics Systems Jo Ann Oravec, University of Wisconsin Whitewater and Madison

The dramatic expansions of the uses of metrics in higher education institutions worldwide have brought with them gaming and manipulation practices designed to enhance artificially both individual and institutional reputation, including ghostwriting, paper mills, coercive citation, gift authorship, and many others.
Can Improved Science and Technology Mean Progress?

I: Traditional (Closed) Panel

Claes-Fredrik Helgesson

Platforms such as Google Scholar are being manipulated in order to enhance the reputations of universities. They are similarly "gaming" various institutional ranking systems. This paper discusses the emerging discourse in the US, UK, and several other nations on how academic metrics have served to influence many faculty and staff members to engage in such forms of gaming and manipulation—what this influence possibly reflects about the individuals involved as well as the academic enterprise as a whole. The narratives involved can be unsettling, with strong words such as "malice," "fraud," "scams," "cheating," and "injustice" (and even "extortion") directed at some of those involved; there is often sadness and despair expressed by many of the observers and commentators as well as frustration in not being able to formulate specific solutions to the underlying problems. Other narratives have been less severe in their perspectives, noting trends toward the "gamification" of academic research and the construction of "fictional" intellectual realms (Hammarfelt, de RJcke, & Rushforth, 2016; Oravec, 2015). The paper also discusses approaches toward making the evaluation of the intellectual production of faculty and staff a more sensitive and nuanced process rather than a mechanical procedure that can be readily gamed.

Redefining "Publication" and "Evaluation" Mario Biagioli, UC Davis STS Program & Law School

In the 17th century, "publication" meant making things public by a variety of means ranging from lectures to letters, personal conversations with reputable people, and printed publications. That changed in the nineteenth century when the definition of publication was narrowed down to printing articles in academic journals. But if the definition of acceptable modalities and technologies of publication changed in time, the assumption remained that the evaluation of the claims made public was to be done by those who listened to or read them. It was a judgment made by humans, which could be contested by challenging either the protocols employed in the judgment, or the qualifications of the people making them. Today, instead, publication is no longer necessarily evaluated through reading by people but, in some contexts, through markers connected to the publication (though external to it), such as the impact factor of the journal where it is published or the number (or, in some case, the weight) of the citations it receives. The meaning of "publication" has substantially changed, not just because its evaluation has ceased to require human agency, but also due to the fact that publication is no longer limited to the process of making claims public. Publication used to be separate from evaluation (which was clearly thought and practiced as a post-publication activity), but in some cases the two are now folded together. When it relies on the journal’s impact factor, evaluation no longer follows publication but takes place together with the act of publication, by locating where the publication happens and attaching that location’s index — the impact factor — to the publication. A publication is born evaluated, so to speak. The meaning of evaluation has changed as much as that of publication. It is not just that, as we have often heard, nobody reads, people only count, or you don’t even need people to do the counting anymore. Something more radical has happened: the traditional locus of evaluation — the publication’s claims — has become technically irrelevant to metrics regimes based on impact factors. It is not that people ought to read but have lazily stopped doing that. People still read for research and educational purposes, but reading is no longer a necessary component of institutional forms of evaluation because some of those metrics have simply nothing to do with the epistemic dimensions of the publication — its claims — but rely, instead, on metadata-like markers that can be picked out and processed by non-humans.

Chair: Claes-Fredrik Helgesson, Linköping University, Technology and Social Change

062. Can Improved Science and Technology Mean Progress? I: Barriers

Traditional (Closed) Panel

9:00 to 10:30 am
Sheraton Boston: Floor 3 - Exeter

Must technoscientific “progress” proceed so technocratically? Dominant innovation discourses implicitly support the view that scientific knowledge and technoscientific innovation automatically translate into improved living. Such a view has led to the promotion of “permissionless innovation,” an ideology that legitimizes a hands-off approach to the “disruptive technologies” designed by Silicon Valley entrepreneurs and freedom of research in their R&D departments. However, scholars have shown that sociotechnical innovations typically benefit some people and organizations more than others. Thus it is clear to many within STS that those wishing to enact non-technocratic visions of progress face social as well as technical barriers. To mitigate or head off the worst consequences of permissionless innovation and other discourses that naturalize the politics of technoscientific change, scholars must consider alternative ways of steering technoscientific agendas, aside from allowing small groups of technically and financially powerful elites to make most of the decisions. How might new technologies and research programs be shaped to be more suitable for public purposes before markets let them loose into the world? The purpose of this panel is to explicitly examine what would be required to guide science and technology toward better fulfilling more humans’ needs more of the time. Possible topics include, but are not limited to, mechanisms for slowing the pace of technoscientific change, addressing the privileged position of particular decision-makers, counteracting the subtle effects of “permissionless innovation” and other naturalizing discourses, and better enabling lay citizens and experts to critically probe the politics of innovation.

Participants:

Obduracy: A Barrier to More Intelligent Steering of Spaceflight Michael Bouchez

If the plans of many private companies for space development come to fruition the impacts are likely to be far-reaching: both the potential benefits and the severity of potential consequences. The harms of sociotechnical systems cannot be well predicted at the outset, when steering them would be easy, but by the time enough is known about their problems to act with confidence, change has become exceedingly costly and difficult (Collingridge 1980). Minimizing the severity of consequences while assuring some degree of reasonable fairness in the benefits will require some degree of trial and error. The main risk in trial and error learning is a misalignment between identifying errors, correcting for them, and the experienced consequences. Such catastrophic consequences might occur: before errors are identified, before errors which are identified can be corrected, or because errors are not corrected at all (Woodhouse 2013). Obduracy is an important barrier to protecting against such consequences. The most general risk from privatization of spaceflight is the same as from a U.S. governmental or any other approach to moving outwards from Earth: obduracy that reduces the prospects for future modifications based on learning by doing. However, a privatized approach presents an even more clear and present danger because of the great skills, financial resources, and ideological norms that corporate executives can deploy in support of their goals. Obdurate technological systems resist attempts to direct and steer them. However, obdurate technical systems are not unalterable. I have identified four facets of obduracy: accumulation, lock-in, path dependence, and momentum. The power of obduracy to resist steering comes from the routinization which, in turn, stems from accumulation. Because obduracy does not have its roots in any one policy position or inflexible technical artifact, it requires reconstitution through constant maintenance. If non- or anti-democratic structures govern near-term stages of space exploration and development, the early movers’ advantages may well ossify into arrangements that lock-out a significant fraction of humanity for a long time to come.

Observing, Inflecting and Comparing Expert Performances of Smart Energy En. Erik Fisher, Arizona State University; Anne Hammang, ASU; Anthony Levanda, Arizona State University; Thaddeus Miller, Arizona State University; Jennifer Richter, Arizona State University
Neglected Tropical Diseases: The Production of Neglect in Policy Problems

Samantha Vanderslott

I am concerned with how previously neglected issues, in this instance tropical diseases, gain prominence in policy agendas, and how advocacy and evidence are used to bring issues to the attention of policy makers. The term ‘neglected tropical diseases’ (NTDs) was coined in the early 2000s to describe lesser known diseases that existed in the shadow of the high-profile and well-funded “big three” — HIV/AIDS, tuberculosis (TB), and malaria. The case of NTDs demonstrates how a policy problem can be understood amidst connections being drawn or not drawn between issues, and the forms of intervention taken to address neglect in policy. Thus the central question of this paper is: How did a re-labeled disease category within a decade result in billions of funding being directed towards a previously neglected issue, with global commitments for control, elimination, and eradication? The analysis is presented in two parts to show how NTDs have gained acknowledgement and care through the concept of neglect and the activism of a small group of elite scientists. Firstly, drawing primarily on policy reports, I explore the rationalization of common characteristics and methods of standardizing a disease grouping (a far from straightforward process as various lists of NTDs attest). Secondly, through 55 semi-structured interviews with stakeholders and using theories from STIR and public policy, I provide a socio-historical analysis of the origins and policy development of NTDs. I discuss how policy appeal is created through the use of advocacy and evidence, more usually treated as distinct areas within global health policy. I conclude that both the perception and responses to neglect in policy can be understood in four distinct and overlapping ways, through: information, action, feeling, and thought.

Chair: Michael Bouche
Discussant: Taylor Dotson, New Mexico Tech

063. Emerging Technologies and Conservation I

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Fairfax A

If the broad (and sensible) approach to conservation is the protection and ethical use of natural resources (with an emphasis on the ‘natural’), one could argue that emerging technologies — especially but not limited to the tools of genetic engineering — have rendered some conservation efforts ‘insensible.’ In our understanding of meaning-making behind how conservation efforts might unfold, emerging technologies’ role in conservation may spark calls for reimagined landscapes that integrate multiple knowledge bases (e.g., historical ecology and responsible innovation), require hybridized and problematized notions of the ‘natural,’ and disrupt assumptions about traditional partnerships and positions. Importantly, such an amalgam of ethical and technical considerations also calls for emerging analytical and governance frameworks to explore the dynamic socio-technical landscapes and relationships. This session invites papers that address the complex intersections between emerging technologies and conservation. We are interested in how the rationalization of common characteristics and show how advocacy and evidence are used to bring issues to the attention of laboratory researchers, civil servants and environmental activists. We situate these micropractices of individual experts within multiple levels and sites located in Phoenix, Arizona and Portland, Oregon. For instance, the pursuit and development of “smart” energy innovation takes markedly different forms in the two cities and can be related to the historically and geographically based, regional sociotechnical imaginaries of the American Southwestern desert and verdant Northwest, respectively. Our engagements follow the approach of socio-technical integration research (STIR), a collaborative description-based form of participant observation that is meant to probe expert decision practices over time. We conduct these in diverse professional settings (academia, industry, public planning, civil society) in the two different cities over two years. We are interested in how social science engagements of individual expert performances can insert such performances, reveal possibilities for alternative imaginaries, and ultimately inform expert capacities for modulating performances in support of the democratic governance of science and technology.

Adapting Restoration Science to a Changing Climate

Shana Lee Hirsch, University of Idaho

Due to the combined effects of hydropower development, overfishing, and land-use practices, there are currently 13 salmonid species listed under the Endangered Species Act (ESA) as either endangered or threatened in the Columbia River Basin of the Pacific Northwestern United States. Yet despite mandates to restore salmon to the river, climate change is becoming a major impediment for ecological restorationists and policy-makers alike as temporal and spatial shifts in precipitation and temperature are altering the hydrologic regime of the basin. Ecological restoration is recognized as critical tool for...
maintaining biodiversity and mitigating the impacts from climate change in the basin, yet the field of restoration itself must adapt its scientific practices to meet these changing conditions. The ecological restoration that is taking place in the Columbia River Basin offers a unique case study of an epistemic community and its scientific practice at a critical time of uncertainty due to climatic change. This research employs ethnographic methods and interviews with restoration practitioners, scientists, and policy-makers to examine how scientific practice adapts to climate change as individuals negotiate uncertainty, adopt tools such as climate impact models, produce new categories and concepts, and alter the ways they produce knowledge. The transformation—or adaptation—of the science of ecological restoration will have important and measurable impacts on the ways in which natural resource managers and scientists respond to climate change, including our understanding of the ways that science, policy, and management relate, and the way that a climate-altered nature is valued and imagined.

Bioaerosols and the Calibrative Space Peter Taber, University of Arizona

Drawing on a mix of interviews and ethnography, this paper examines the recent use of bioaerosols, airborne proteins, as a mechanism for estimating local biodiversity. Taxonomic methods, based on the visual and tactile inspection of field specimens have been the workhorse of international biodiversity conservation for the last three decades. These methods characteristically produce species lists, which form a valuable empirical basis for management recommendations, but one that is notoriously difficult for non-taxonomists to interpret. Bioaerosol sampling, on the other hand, produces molecular data that is amenable to statistical inference, and which is thus more accessible to scientists trained primarily in molecular biology and ecology. At the same time, in order to be useful, these protein profiles must be commensurated with existing, more conventional estimates of taxonomic diversity and abundance at specific localities. I draw attention to the role played by highly controlled, and scientifically ‘well-described’ labscapes in the process of interpreting bioaerosol profiles. In the context of their use to interpret bioaerosol samples, the paper conceptualizes these as ‘calibrative spaces’. They are used to construct and manage a series of indices that allow specialists to make sense of bioaerosol profiles in relation to more intuitive and historically established ways of interpreting biodiversity. The paper uses the example of a permanent fifty-hectare forest plot within Ecuador’s largest Amazonian protected area, Yasuní National Park, as a starting point for thinking about the calibrative space as an emerging infrastructure of conservation. At the local level, the calibrative space highlights the problems of managing territory and social relationships with biological resources intrinsic to conservation more generally. At the level of the actual practice of environmental management, the calibrative space points to shifts in the disciplinary ownership of conservation (from biology to ecology, in Ecuador). Finally, at the level of the rationales of governance, the calibrative space suggests new biopolitical complexities in the way that biological beings are understood and managed en masse as resources, on the basis of new ways of constructing ideal typical biomes.

Bayesian Predictability as an Entry to Justice-Oriented Futures Elizabeth Hare

In this paper, I explore how two ideological foundations (the use of prior probabilities and the related assumption of the continuity of phenomena) of Bayesian statistics alter what it means for a statistical forecast to render phenomena predictable. This paper is based on ethnographic research with scientists developing ecological forecasting models for conservation management. Much of ecological science and many land management strategies rely on assumptions of continuity that is incongruous with the uncertainty of the futures that we are planning for. Yet, paradoxically, this uncertain future is typically presented as a reason to double down on predictability—we must plan for future indeterminacies. This reliance on predictability and continuity inhibits meaningful political interventions. Building on the work of feminist STS scholars such as Karen Barad and Donna Haraway, I argue that the proliferation of Bayesian statistical models could instead present an opportunity for a greater acknowledgement of the role of embodied, situated, and subjective information in scientific knowledge-making, and for the inclusion of priors to be taken as an opportunity to reframe predictability so as to acknowledge that the prediction of futures is a political task that privileges some futures and forecloses others.

Understanding Narratives Surrounding the Genetically Modified American Chestnut Tree Through the Narrative Policy Framework Jayce Sudweeks, North Carolina State University

When confronted with a scientifically complex and politically contentious problem people often utilize narratives as a method to process, learn and understand these situations. These are both personal narratives and the stories that they receive from the wider world. Many of the narratives presented to the public by groups interested in these complex problems are consciously manufactured to influence both the public and policy decision makers. The Narrative Policy Framework (McBeth, Jones, & Shanahan, 2014) provides a methodology to understand how policy narratives are constructed. An examination of the debates surrounding the potential release of genetically modified American chestnut provides an opportunity to analyze the types of narrative elements and strategies that are utilized in highly complex situations. The genetically modified American chestnut sits at the crossroads of several contentious topics including the use of genetic engineering technology, conservation and restoration practices, and role of scientists in policy debates. This study examines which organizations are involved in the genetically modified American chestnut narratives, how the various actors are portrayed in their narratives, and what strategies are utilized to influence others to their preferred policy solution.

Chair: Kathleen Barnhill, North Carolina State University

064. What is ‘(Un)making’ STS Ethnographies? Reflections (Not Exclusively) from Latin America

Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Fairfax B

STS scholars have found in ethnography a means to produce situated knowledge about their own research problems. Likewise, STS has offered a set of discussions that has permeated ethnographic practice. Hence, STS-oriented ethnography consists of an interface or contact surface that continuously unmakes and remakes interpretations, ways of seeing, as well as objects, categories and descriptions. Still, ethnography is not exempt from this transformative process; ethnography is also reconfigured as a knowledge object. The latter aspect is of particular interest for this panel. Drawing on our own research in Latin America we believe that ethnography, while being unmade and remade, might deserve additional adjectives. Thus, we have speculated about the possibility of rethinking STS ethnographies as experimental (destabilizing the meaning of knowing), mestizas (hybridizing different objects), decomposing (accounting for creative processes in unconventional places), stacked (permitting the coexistence of different ontologies and arrangements in a single space), more-than-human (destabilizing the human/non-human distinction), and (in)sensible (questioning what seeing, feeling or experiencing through modern technoscience is about). We seek contributions from Latin America as well as from other similar localities around the world, that reflect about other possible adjectives, and ways of (un)making STS ethnographies. Far from establishing a taxonomy, we want to delve in reflections exploring (1) how STS ethnographies reconfigure other objects and/or (2) how STS ethnography is unmade and remade through its own use.

Participants:

Corpo-Real Ethnographies: Bodies, Dissection Planes, and (Non)Difference. Anatomies for the Violent Conflict in
Colombia Santiago Martínez Medina, Universidad de los Andes; Julia Morales Fontanilla, UC Davis

Science and technology studies enacted as ethnographic endeavours have produced abundant literature that destabilizes the body as an univocal unit limited by the flesh and knowable only through epistemic exercises of representation. Taking from that literature and building on a notion of ethnographic fieldwork as that which is done both in the fields and in theory writing practices, this work unpacks our exercise of doing collective ethnography from an anatomy laboratory and the state morgues within the larger context of violent conflict in Colombia. We take our ethnographic fieldwork to be the result of relational connections between the different sites in which we carried out research. Thinking with it, we aim to produce other planes - which we conceptualize as dissection planes that emerge from our research field at the same time that they make it. We want to produce complex entities to think the particular connections among practices and actors inside the anatomy laboratory and the morgues. It is under this lense that we think body, and also our ethnographic practice. Our first layer, which follows the lines of dissection planes, makes explicit the ways the anatomy lab and the morgue allow for the emergence of bodies that are not different or similar, but rather the relational and heterogeneous staking of body materiality. From this, we have an attempt at another planes in which we make explicit how the violent conflict in Colombia mades body in the morgues, and then how the body is rendered an anatomy for the conflict.

Decolonizing/Indigenizing: Speculating on 'Ethnography as Healing' towards bridge building with (more-than)-(but including)-humans research co-laborers.

This paper speculates on ‘ethnography as healing’ as a modality of decolonizing/Indigenizing processes. Ethnography emerged alongside mapping, and both have been used as colonial tools. While ethnography remains problematic, this paper explores the possibilities of reclaiming and remaking ethnography through its own use. Building on feminist Indigenous approaches to inquiries that are rooted in caring about making Indigenous lives better and publicly engaged feminist practices in Colombia, are affected by material doings of textile crafting practices and shaped by the material doings of textile crafting practices themselves. In particular, the paper focuses on textile crafting associated with public engagement as is the case of costureros de memoria (memory sewing-circles) and cases of public knitting and embroidery related to community building. I pay special attention to three processes that are constitutive of textile crafting—research design and participant observation. First, I offer a short intervention toward decolonizing ethnographic research objects and speculate on Indigenizing ethnography by following a different sort of “object.” I propose that in doing so, the ethnographer is invited to reach beyond ‘participation’ into ethnographic embodiment. Finally, I explore possibilities for ‘ethnography as healing’ toward bridge building with (more-than)-(but including)-humans research co-laborers.

How Embroidery Can (Un)Stitch Ethnography? Tania Pérez-Bustos, National University of Colombia

In this paper, I reflect upon how ethnographies, directed towards understanding the role of textile crafting as feminist embodied and publicly engaged feminist practices in Colombia, are affected and shaped by the material doings of textile crafting practices themselves. In particular, the paper focuses on textile crafting associated with public engagement as is the case of costureros de memoria (memory sewing-circles) and cases of public knitting and embroidery related to community building. I pay special attention to three processes that are constitutive of textile crafting but that are not always seen as central parts of textile crafts as final products. These are: processes of stitching as writing, of de-threading and unraveling, and of mending and darning. I argue that these are world-making processes through which ethnographies become otherwise: they allow the making of ethnographies as more than deep descriptions embedded into texts, they open the possibility of embracing ethnographies as therapeutic and accompaniment research practices, they question research temporalities and subjectivities.

Labyrinth to Pinwheel: STS Ethnography in an Archive Amy Cox Hall, Amherst College

This paper examines research conducted on Hiram Bingham’s three scientific expeditions to Peru from 1911 - 1915 at Yale University’s Manuscripts and Archives. I first visited the archives in 2006 and then returned again in 2007. When I embarked on the research project, which would later form the basis of my dissertation and subsequent book, I did not have any real sense about who Bingham was or how his expedition truly aligned with a long history of scientific expeditions to South America. Rather, I was mostly interested in the photographs he had taken of Machu Picchu and how that contributed to its eventual making as World Heritage. As conceived at the time, my project was both historical and anthropological and I wanted to conduct archival research and fieldwork to examine how photographic and historical narratives were grafted into the present. Then, I read everything in Bingham’s Family Papers and the Yale Peruvian Expedition Papers in the archive. In this paper I examine the way in which STS and an ethnographic sensibility informed my initial reading of the archive and then ultimately provided an intervention. In particular I focus on the making of one chapter of my book, “Epistolarie Science” to examine how the direction and conclusions were made and unmade, both materially and immaterially, through an insensible labyrinth. I analyze how the argument of the chapter, indeed its “findings,” and ultimately its “sensibility,” were produced out of, and through, an engagement with STS. I conclude with a discussion of how an archive might be approached ethnographically and how the producing of history and ethnography are not simply improvisation (Cerwonka and Malkki 2007) or quests for clues (Ginzburg 1986), but a labyrinthine struggle and negotiation of the material and immaterial, all in a laborious effort to make sense of the past through, and in, the present. Cerwonka, A. and L. Malkki. 2007. Improvising Theory: Process and Temporality in Fieldwork. Chicago. University of Chicago Press. Ginzburg, C. 1986. Clues, Muses and the Historical Method. Baltimore: Johns Hopkins Press.

Mestizo Animals: Penguins and Huemules in Two Socio-Technical Controversies. Gloria Baigorrotegui, Instituto de Estudios Avanzados - Usach; Colombina Schaeffer, University of Sydney

During the last decade, the Chilean neoliberal electricity regime has been overflowed by collective actions determined to resist the construction of power generation projects. Carbon-based thermoelectric plants and mega-dams have been paralyzed thanks to innovative collective actions and actors, including non-human actors. From a material semiotic perspective, non-humans cannot be considered mere intermediaries in these processes, but also mediators. In this presentation, we follow the processes of irruption and purification of two non-human actors in two socio-technical controversies in Chile: the Humboldt penguin in the Barrancos coal plant controversy, and the huemul in the Hidroaysén hydropower project controversy. Different ways of addressing the role of non-humans in controversies have been proposed in STS. Here, we explore Silvia Rivera Cusicanqui’s notion of “mestizo” to further understand and unfold the complications and ambiguities these animals pose. We propose that the notion of “mestizo” and “mestizaje” allows us to account for more layers and for the poscolonialities, identities and histories of these animals and the process of turning an issue controversial, which until now have not been sufficiently highlighted in STS.

Chairs: Fredy Mora-Gámez, Linkoping University
Santiago Martinez Medina, Universidad de los Andes
Tania Pérez-Bustos, National University of Colombia
065. Whiteness and Technoculture I
Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Gardner A

These two panels bring together a collection of papers to address the paradigm of whiteness in technoculture. As a paradigm, whiteness contributes to the insensibility of struggle, violence, trauma that now regularly take place on and within digital platforms, social media, and information technologies. The anonymity of many of these technologies has amplified hate speech and reinvigorated a toxic white masculinity. In the current political climate, we have witnessed how technoculture has amplified rhetorics of hate in the name of free speech, contrary to the utopian visions of early internet punditry. Concomitant with these struggles, violent acts, and traumas, is the conjuring of insensibility through the spectacles of fake news, alternative facts, and anti-intellectualism. Our approach to whiteness, in this panel, extends conversations within feminist utopian visions of early internet punditry. Concomitant with these amplified rhetorics of hate in the name of free speech, contrary to the notion that privilege whiteness. In this talk, I propose an alternative interpretation of the encounters between Vietnamese youth and the rest of the world is based on a binary construction of self and other. Instead, this paper proposes an alternative interpretation, one grounded in a logic of otherwise that combines feminist science and technology studies with Asian American critique (Bowker and Star, 2000). Taken together, this paper argues that this logic of otherwise, in the case of software production in Vietnam, elucidates the ways in which sociotechnical achievement is a dynamic and speculative expression and extension of the possibilities of self. This approach represents an intersectional critique of technoculture to challenge the underlying investments in whiteness that shape the global circulation of digital culture.

"Design Thinking" and the Racialization of Expertise Lilly Irani, University of California, San Diego

This paper examines the emergence of “design thinking” as a form of technical expertise. It demonstrates that “design thinking” articulates a racialized understanding of labor, judgment, and the subject and attempts to maintain whiteness at the apex of global hierarchies of labor. “Design thinking” is a form of expertise that poses design as form giving, but as a form of expert knowledge by which executives can plan products, services, and accumulation. Silicon Valley business schools, and reformers promote it as a form of caring technical expertise by which some guide futures for others. The paper will examine the history of the concept of “design thinking” — a category forged by Silicon Valley designers in the face of mounting competitive pressures on design professions in the United States in the mid-2000s. By drawing on artifacts, documents, public debates about the design profession from this period, I will demonstrate how champions of “design thinking” responded to expanded availability of design labor globally by figuring Asians as Other in three ways. First, they elevated user empathy above aesthetic judgment as expertise informing design just as Asian product designers threatened to offer more culturally “authentic” judgment. Second, the design thinker was framed as curating an overabundant manufacturing capacity built on Asian labor and even piracy (Philip 2006). Third, they elevated design thinking as a synthesis of “left brain, right brain” labor in contradiction to Asian “left brain” engineers. These figures were built on older figures of Asians as automatic, patterned subjects in contradiction to individually sovereign whites (Schaffer 1999).

Chair: Lilly Nguyen
Discussant: Jennifer Hamilton, Hampshire College

066. Dynamics of Knowledge: Bioeconomy and Health I
Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Gardner B

Social Studies of Science have been focused on the study of new relationships between health and new technologies. Advances have compounded the perception of the subject, multiplying the controversies and uncertainties: during the last century, changes in the epidemiological profile contributed to the emergence of new diseases and new perceptions on environmental and behavioral risks. In some areas of the sciences, sociological research played an important role in analyzing the implications of the use of scientific knowledge in contemporary society. The field of “Life Sciences”, for example, has a curious “fluidity” in its disciplinary boundaries, especially over the last thirty years. Its intellectual analysis and its technological content have changed rapidly since the 1980s. The "bios" has evolved towards the production of different technologies of knowledge and the rest of the world is based on a binary construction of self and other. Instead, this paper proposes an alternative interpretation, one grounded in a logic of otherwise that combines feminist science and technology studies with Asian American critique (Bowker and Star, 2000). Taken together, this paper argues that this logic of otherwise, in the case of software production in Vietnam, elucidates the ways in which sociotechnical achievement is a dynamic and speculative expression and extension of the possibilities of self. This approach represents an intersectional critique of technoculture to challenge the underlying investments in whiteness that shape the global circulation of digital culture.

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Chair: Lilly Nguyen
Discussant: Jennifer Hamilton, Hampshire College
evident in the amount of work produced in the field since the 1980s. Some fields of science are quite controversial, and at the same time point to a field of research with a robust market and present issues related to ethics and governance. From this perspective, we propose to discuss the relationship between bioeconomy and health, to allow a deeper understanding of some new technologies and of society.

Participants:

**Expertise Data and Accountability from Evidence Based Medicine to Measurement Based Medicine David Mercer, University of Wollongong**

Evidence Based Medicine (EBM) emerged more than two decades ago and has been significant in re-shaping medical knowledge and practice. In part its success was leveraged by claims made by its supporters that through its use of statistical methods, clinical trials and reliable data collection it constituted a scientifically objective form of medicine which offered a solution to a growing crisis in traditional medicine caused by its over-reliance on socially mediated, subjective expertise based on credentials, convention and experience based knowledge. Whilst some academic commentators noted that, despite its aspirations, EBM would never escape social and politically mediated judgments being built into its fabric, it has only been in relatively recent times that serious mainstream critiques of EBM have begun to appear more frequently in journals such as the BMJ, acknowledging the limits of EBM. One strand of this critique, and call for reform to EBM, has appeared in the promotion of Web 2 inspired self learning health care systems such as Patients Like Me. Proponents of these systems often describe them as introducing a new era of Measurement Based Medicine (MBM) which will replace EBM. My presentation will examine some of the similarities between the socio-technical imaginaries and styles of technological deterministic rhetoric which have framed the emergence of EBM, and are now re-appearing in the framing of the possible emergence of MBM. In particular I will focus on the way images of what constitutes legitimate medical knowledge and expertise have been constructed through appeals to mechanical objectivity and data. My presentation contributes to concerns with the politics of expertise, medical policy and computing and new media technology.

**Molecular Biotechnology and the Political Economy of Cancer Care Shirley Sun, Nanyang Technological University**

Cancer is a multi-factorial disease and a leading cause of death worldwide, accounting for 8.2 million deaths in 2012 (World Health Organization, 2012). There has been a long history of using different scientific approaches to address the problems of cancer, well-documented in The Emperor of All Maladies: A Biography of Cancer (Mukherjee, 2010). While prevailing scientific evidence suggests that more than 50% of cancers can be prevented (Colditz, 2012), and that minorities suffer disproportionately from environmental factors of cancer, in this paper I draw on semi-structured interview data with geneticists and physicians in Asia to highlight that the revolution in molecular science and the advance in DNA technology has re-invigorated an old debate. I will highlight the crucial issue of how cancer treatment and medical intervention at the genetic-level overshadows cancer prevention and intervention at the environmental level. In addition, I draw on the interview data to highlight the problematic consequences such an over-emphasis has for public health. Finally, I will explain why it is difficult for researchers studying non-genetic factors of cancer to get funding and why it is important to lend strong funding support for such cases even in the post-genomic era.

**Pink Drill Bits: A Feminist Analysis of Fracking and Breast Cancer Advocacy Kristen Abatis McHenry, Spelman College**

Hydraulic fracturing or fracking is a method of accessing natural gas seen by many as a way to reduce U.S. dependence on foreign oil, stimulate the U.S. economy, and address climate change. However, opponents of fracking argue that it is linked to increasing health problems, particularly in women, because of specific toxins that contaminate the air and ground water. According to the U.S. Committee on Energy and Commerce, drilling companies have used products (fracking fluid) containing known carcinogens. While there are an increasing number of anti-fracking organizations, few identify their mission and focus in terms of women’s health. Yet, among breast cancer organizations, there are more and more groups like Breast Cancer Action and Breast Cancer Fund tackling fracking as a key environmental and women’s health concern. Breast Cancer Action and other breast cancer organizations are also concerned about energy companies’ pinkwashing. Companies like Chesapeake Energy are examples of pinkwashing (the practice of corporate exploitation of breast cancer for profit through products and sponsorships, while contributing to cancer by incidence); as they promote pink drill bits while raising funds for breast cancer organizations like the Susan G. Komen Foundation. Examples such as this demonstrate how breast cancer advocacy organizations can be compromised. To that end, this paper explores the way practices such as fracking are influenced by politics and corporate profit, and offers an analysis of fracking as a feminist women’s and environmental health issue.

Chair:

*maria c da costa, Universidade de Campinas - UNICAMP*

Discussant:

*maria c da costa, Universidade de Campinas - UNICAMP*

**067. IPBES and Sensing the Politics of Biodiversity Traditional (Closed) Panel**

9:00 to 10:30 am

**Sheraton Boston: Floor 3 - Hampton A**

The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), sometimes referred to as the "IPCC for biodiversity", released its first assessments in 2016, with several others on the way. Compared to previous international assessment mechanisms on biodiversity, IPBES innovates in its ambition to integrate a great diversity of academic and non-academic knowledges, thus potentially rendering it more sensitive to the various worldviews and framings that can be found in biodiversity debates. How this has been translated into practice and has influenced the works of IPBES, how these works influence biodiversity politics and policies, and what this teaches us about the politics of biodiversity more generally, require collective stocktaking and reflection. This panel welcomes papers on three themes. The first theme is how IPBES makes itself sensitive – or not – to certain types of issues, knowledges, worldviews, and how this is reflected both in its procedures and its productions. The second theme concerns the impacts, potential or actual, of IPBES on biodiversity debates, policies and conservation. Accounts of how IPBES releases have been mobilized in different contexts are especially welcome. Despite its young age, IPBES has already been the object of a relatively important number of works. The third theme concerns analytical and/or reflexive accounts on the literature dealing with IPBES, especially in STS, with a particular attention to identifying the questions that have been investigated so far on IPBES, and those that have not. An intertwining of the three themes in the papers is of course welcome.

Participants:

**A Funny Thing Happened On My Way to the Anthropocene Zoe Nyssa, Purdue University**

What happens at the encounter between expert and technical cultures in which ethnographic evidence is of little value, not legible, or instrumentalized in unexpected ways? For those working on environmental topics, the stakes for these questions have become particularly high. With species going extinct one thousand times the natural rate, the study of global biodiversity for conservation scientists has become a professional, moral, and practical imperative. Elsewhere I have described how, as a new biological and political category of risky existence, species endangerment has material consequences that often oppose scientists’ aims. Insiders call these the “unintended consequences” of their work: preserving habitat incentivizes development; calling species endangered fuels their consumption, moving species to captivity threatens their long term survival. I argue that these paradoxical effects exhibit a
consistent pattern related to how the science of conservation maps out ecologies. This analysis offers a typology of the unintended consequences of conservation, the ways that scientists, their allies, and other stakeholders are surprised by the effects of biodiversity science. But my “mapping” of unintended environmental consequences has in turn generated several unforeseen effects of its own. Thus my ethnographic practice has necessitated a crash course in how to preserve a critique of biodiversity science that avoids immediate co-optation into either the projects of the scientists themselves or a broader political agenda of antienvironmentalism. Moving beyond debates of the “Anthropocene”, I suggest that we should consider other, perhaps unforeseen effects of its own. Thus my ethnographic practice has necessitated a crash course in how to preserve a critique of biodiversity science that avoids immediate co-optation into either the projects of the scientists themselves or a broader political agenda of antienvironmentalism.

Systemic changes in the quest for sustainable inclusive development: IPBES agenda through the light of a small country case-Uruguay. Isabel Bortagaray, Universidad de la Republica

This paper attempts to analyze the relationship between global and local approaches to sustainable and inclusive development, by focusing on the IPBES agenda at the global level, and on the Uruguayan policy agenda at the local level. The questions have to do with: • How do the global and the local (national) agendas interconnect in terms of themes, approaches and frameworks, values and goals? • What are the potential synergic/antagonistic spaces for the co-evolution of both levels? • How do the global translate/apply in the local? • What are the potential drivers of change at the local level, and how do they connect with the global? • What is the role of government, and what is the role of science, technologies and innovation in both levels? The inspiring question relates to how do national socio-technical systems transit into more sustainable and inclusive development pathways?, and what role could IPBES play in this sense? The work tackles this dual level analysis of the global and local agendas and approaches as an attempt to determine the extent to which these two levels could really speak to each other. Some questions will be specifically addressed in terms of the dynamics of the socio-technical systems in both levels, the approach/role of government, and the approach/role of knowledge and innovation.

A lawyer’s perspective on the IPBES: Law and STS as analytical and normative tools Guillaume Futhazar, University Aix-Marseille / OT-Med

Given its mandate, one can only expect the IPBES to actually have a genuine impact on the governance of biodiversity. Yet, literature on environmental assessments suggests that measuring their exact influence remains a difficult task. Therefore, rather than asking what the impacts of the Platform will be, one might find promising leads in asking how the Platform can influence policy-making. This question prompts an analytical shift from the institutional characteristics of the IPBES to the tools available in order to translate the products of the Platform into impactful elements. Here, law proves to be a powerful framework, especially when combined with STS. Our main argument is that both the characteristics of the Platform and the recent evolution of environmental law at the international and European level are to be read in unison in order to pin down by which legal means different actors can make the Platform have an impact. By doing so, we will draw on the STS and legal scholarship dealing with the interaction between science and law to which we will add an analysis of current practices at the international and European level. Doing so, we will see how the STS literature on Science-Policy Interfaces resonates with new fields of legal enquiry, notably global administrative law and theories on normative strength. Combining a legal and STS approach can add a more normative turn to the STS discipline and also present STS scholars with a more nuanced understanding of law departing from a strictly positivist approach.

Buzzing news: Analyzing the worldwide media impact of the IPBES pollination assessment Aleksandar Rankovic, IDDRI; Tommaso Venturini, Sciences Po Paris; Kari De Pryck, Sciences Po / University of Geneva; Virginie Tournay; Isabelle Dajoz, Université Paris-Diderot; Yann Laurans, IDDRI - Sciences Po

068. Life and Death of Partnerships in Research and Innovation I

Chair: Aleksandar Rankovic, IDDRI
Discussant: Alice Vadrot, University of Cambridge

The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) is a newcomer in the international biodiversity governance landscape, and one dedicated to knowledge synthesis. It released its first assessments in 2016, and has several others on the way. How these works will influence debates and practices on biodiversity represents an interesting case to study the politics of environmental knowledge, the role of institutional design within it, and the role of knowledge in supporting biodiversity conservation. One way in which IPBES wishes to have a positive impact for biodiversity is to increase awareness on the issues related to biodiversity loss. One way in which IPBES can achieve this is through its communication strategy and the coverage of its reports by the media. However, how these knowledge products will be mediated is likely to differ across countries, depending both on the place that science usually occupies in different national public debates and on what environmental debates are agitating the countries when the reports are released. Furthermore, it is important to analyze how IPBES frames a given biodiversity issue and how this framing “travels” in the media of different countries, in order to understand the effect that IPBES can have on the public representation of biodiversity issues worldwide. This paper will explore these questions by using IPBES’ first thematic assessment, on pollination, as a case study and will present results obtained through a quantitative and qualitative analysis of the pollination report’s media coverage.

Participants:
Towards Evidence-Based Scientific Collaboration Policy Adam Ploszaj, University of Warsaw; Agnieszka Olechnicka, University of Warsaw

Scientific endeavour is increasingly collaborative. This is seen not only on the individual level (rising size of research teams), but also on an aggregate level (collaboration between cities, regions, countries and continents). Collaborative turn in science
is accompanied by the emergence of numerous scientific collaboration policies. Collaborative component of science policy became more and more visible - many national and regional governments have implemented such instruments (e.g. Framework Programmes in the European Union or Industry/University Cooperative Research Centers in the US). However, the assumption that inter-organizational, interregional, national scientific collaboration is productive and beneficial is not consistently supported. A number of empirical studies bring ambiguous results, demonstrating that joint research may have mixed impact on research outcomes or that the intended positive influence occurs only under specific circumstances. The article attempts to systematise the variety of scientific collaboration policies tools, based on three examples: Europe, China and the US. Three types of instruments are distinguished: focused on (1) increasing scientific collaboration, (2) increasing scientific quality and productivity through collaboration, (3) increasing scientific performance (and addressing collaboration only implicitly). The analysis allows to conclude that the proposed policies are weakly evidence-based and a proper evaluation of their effects needs to be more thoroughly explored.

Funding Partnerships in Research and Innovation Julie Sommerlund, University of Copenhagen, Faculty of Humanities

During the past decades, governments throughout the world have invested massively in infrastructures for knowledge exchange and innovation. The seminal idea is to promote growth by furthering innovation. Innovation is sought achieved through the funding of partnerships between researchers and businesses (e.g. Getting a Head Start on Tomorrow (OECD, 2008), Europe 2020 (EU, 2010) and Danmark - Løsningsørdes Land (2012)). This paper focuses on how funds are distributed through partnerships and knowledge exchange and what criteria are used to determine which partnerships are to be funded, and which partnerships are seen as successful. The paper therefore focuses on evaluation criteria in partnership programs, and thus contributes to the longstanding debates on evaluation and accountability within STS (Bowker & Star, 2000). Particularly, the focus will be on criteria identifying how close research is to market application, such as Technological Readiness Levels or the newly developed scheme, but also who does not benefit, why not, and what the benefits from the current set-up of large-scale research funding schemes are. The paper also contributes to STS by analyzing and discussing how funding flows through Science, Technology and Society enabling specific types of research and innovation and mobilizing specific types of researchers and businesses. The paper asks the question of who benefits from the current set-up of large-scale research funding scheme, but also who does not benefit, why not, and what the consequences are. The paper is based on desk-research, mapping out the funding landscape and evaluation criteria for research performed in partnerships. The scope is international, but the lion’s part of data is Danish or EU-based.

Process Indicators and the Valuation of Research and Innovation Partnerships Signe Vikkelso, Copenhagen Business School; Mikkel Stokholms Kaastrup, Copenhagen Business School

Publicly funded research and innovation projects are increasingly carried out as formal partnerships between public and private partners. It is expected that the partnership is the best organizational format for securing commercialization of research knowledge. However, it is also clear that the quality of a partnership is dependent on the ability of partners to balance individual interests and work effectively together, and that the funders must continuously “value” partnerships in order to reduce their investment risk. While there is typically strong input criteria for allocating funding to partnerships (e.g. project idea, partner quality, business plan etc.), it is less obvious what the appropriate indicators are for continuing, stopping and evaluating partnerships. The paper reports from a study of Danish innovation partnerships and the effort to develop relevant “process indicators” (e.g. the number of partnership meetings and the collaborative competences being displayed). We point to tensions in the partnerships and between funder and partners that such indicators serve to elucidate. We will discuss the increasing dissonance between rather firm input criteria, softer process criteria and subtle output criteria at work, and the way partners navigate between these. On basis of the findings, we discuss the wider consequences of the turn toward partnerships and the dissonance of indicators for the content of research and innovation projects. With this, we contribute to the literature on research organization and to debates on the “marketization” (Mirowski, 2011) and ‘financialization’ (Chiarello, 2015) of science and innovation.

Chair: Signe Vikkelso, Copenhagen Business School

069. Predictability’s Promises I

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Jefferson

Modern techniques to render phenomena predictable — including computer models, big data analytics, and global observing systems — have rendered certain possibilities of the future legible, and the “not yet” calculable. Predictability calls forth futures yet-to-come: from forecasts of tomorrow’s weather or Earth’s climate in 100 years to the outcome of political elections; from the next earthquake to hit a population centre to the pathways of infectious diseases; from next year’s consumer choices to next month’s military operation by enemy troops. The concept of ‘predictability’ is a powerful organizing figure in the production of what could or will be. Insofar as the present is an anticipatory future, ‘predictability’ also configures the here-and-now: it propels collective epistemic work; fashions ideologies and subject positions; and carves out fields of intervention. Predictability, in short, orders reality in curious frameworks, tools, and techniques is ‘predictability’ constituted? What epistemic space do these tools and frameworks give rise to? • How is ‘time’ constituted in the various sciences of predictability? • How is uncertainty brought into the realm of the calculable or measurable? • For what reasons, and for whom, has ‘predictability’ come to matter in different contexts?

Participants:

Predicting is Dangerous: Experts, Earthquakes, and Avowal

Elizabeth A. Reddy, University of San Diego

Complex earth systems challenge expert efforts to make unequivocal statements about futures. Predicting location, magnitude or timing of an earthquake with any accuracy is simply not possible with current technologies and knowledge. Mainstream earth scientists have little expectation of changing that in the near future, even with ongoing research into both precursor phenomena and sophisticated statistical evaluation of a growing trove of historical and contemporary seismic data. While experts are conservative with their forecasting, earthquake predictions are common in non-scientific and outsider science approaches to earthly phenomena. In this paper, I address the case of Mexican predictor Gabriel Curiel Flores and his work relating earthquakes to seasons and gravitational force. I focus on how mainstream experts (including seismologists, earthquake engineers, and emergency management professionals) narrate his predictions as both methodologically suspect and socially dangerous. In this paper I contribute to efforts across STS to grapple with the practices and ideologies which constitute technoscientific encounters with uncertainty and risk, drawing on ongoing ethnographic and archival research on seismicity to interrogate mainstream expert avowal of Curiel’s prediction. I argue that expert responses to the dangers of prediction themselves can be productively considered as a form of predictive practice, oriented around both social and material phenomena.
How do oil exploration practices reorder the past, the present and the future? To trace the ways in which different modes of ‘predictability’ are constructed while engineers search for oil in Turkey, this paper builds upon contemporary and 20th century oil exploration practices in Kurdish-populated Southeastern Turkey. The instruments of predictability in oil exploration, such as geological mapping, seismic prospecting, drilling, and 3D-modeling attempt to ‘know’ the underground and reorder its temporality. (1) The past, or what happened there: Which geological events contributed to its formation over millions of years? (2) The present, or what is under there. Is there oil? (3) The future, or what can come into being from there. Will extracting that oil be economically viable? Practices of predictability in oil exploration, therefore, bring forth further arrangements of space and time: Investors flood in, drilling licenses are bought and sold, media attention, swindlers and conspiracy theorists begin to flood in. Using historical data and ethnographic encounters with geologists, geophysicists, workers, consultants, and local residents, this paper shows that despite every scientific effort to represent the past, present, and future of the underground, the “truth” about them remains unknown. In other words, when faced with this unknowability, as much as it rests upon hard data collection, engendering predictability vis-à-vis “the underground” always needs the work of imagination. If imagination lies at the core of predictability, and it may be put to use to extract oil and surplus value, can it also be utilized to subvert the scheme of extraction?

Predicting the Unpredictable: Making Sense of the Deep Future of Radwaste Disposal Marika Hietala, University of Exeter

Geological disposal of radioactive wastes (GD) emerged as an international matter of concern in the 1970s, and over the years engineered geological disposal facilities (GDFs) have become considered as the safest available method for disposal. Since 2011 GD has been EU policy binding European nuclear nations to implement disposal solutions. This paper explores how imaginations of the future have been performed in two European (UK & Finland) GD projects to render the future predictable. Imaginations of manageability of radwastes and the predictability of long-term underground processes sit at the heart of GD safety claims. Radioactive wastes retain dangerously high levels of radioactivity for hundreds of thousands of years and conventional safety assessments aim to map the evolution of GDFs one million years into the future. Such a time horizon sits uncomfortably with our everyday imaginations of time. Making decisions about and for the deep future now challenges political thinking, regulatory practice and engineering conventions. The deep future escapes the capacity of existing knowledge production techniques. Uncertainties remain as linear models and relatively short experiments seek to predict the evolution of a lively GDF. Constant interactions between radwastes, microbes, groundwater, bedrock and engineered barriers ensure that the GDF is always becoming, always in emerging. Drawing on interview data, ethnographic fieldwork and documentary analysis, this paper excavates some of the issues emerging from the complex relationship between ‘human time’, uncertainty and the deep future of GD. By exploring how specific material configurations of GDF designs are mobilised to constitute safe and predictable futures, and by tracing routine material practices through which time is manipulated, and the deep future rendered manageable on the lab bench, this paper contributes to this session’s focus on the ways in which predictability is constituted and in which it orders reality.

Chairs:  
Julianne Yip, McGill  
Adam Fleischmann, McGill University

070. Postphenomenological Research 4: Mediated Bodies  
Traditional (Closed) Panel  
9:00 to 10:30 am

Sheraton Boston: Floor 3 - Kent

Our bodies themselves are technologically mediated in various non-innocent ways, with moral and practical implications for how we conceive of ourselves, how we design our prostheses, and how we live our everyday lives. This panel brings postphenomenological insights to the study of the technological mediation of our bodies, reflecting on human “enhancement” technologies, sex selection practices, biometrics, the treatment of locked-in syndrome, and assistive technologies for the disabled. The school of thought called “postphenomenology,” building on Don Ihde’s body of work, has had a presence at the 4S conference and other STS venues for more than a decade. Researchers from philosophy, anthropology, media studies, design studies, sociology, and other disciplines come together to bring a distinct perspective on the bodily experience of technology into STS investigations. A broadly international group of contributors develops and expands the postphenomenological framework, building on insights from phenomenology, American pragmatism, actor-network theory, the social construction of technology, and feminist theory, among other perspectives. These ideas are refined through their application to concrete case studies in users’ experience of everyday devices, and scientists’ experience of the use of laboratory instrumentation.

Participants:  
The Mediated Body: The Human-Technology-World of Disability Stacey Irwin, Millersville University

Contemporary technologies allow for a variety of adjustments and options for humans with disabilities. This analysis moves past the ideas that technology is neutral or deterministic; to explore the human-technology-world relation of those who mediate life through technology that allows them to be more “able.” Foundational work in phenomenology has explored vision impairment and blindness, hearing loss, and a variety of other corporal differences for the body in disability (cf. Merleau-Ponty, 1962). More recent case study work by Julia Watts Belser (2016), Lisa Dietrich (2001) Alison Kafer (2013) and Rene Padilla (2003) looks at difference from a variety of lenses. This paper explores disability as an ontology, a condition of being in the world (Murphy, 1987), and uses the postphenomenological framework and specifically, multistable analysis, along with the above mentioned texts, to explore “assistive” technologies.

Technical self-formation as taking responsibility for what you are not responsible for Ciano Aydin, University of Twente (the Netherlands)

In everyday life our identity is often related to personal characteristics like our name, skin colour, ethnicity, body, desires, trauma’s, etc. What is peculiar is that we have not chosen most of these characteristics. They were given to us by our parents, by nature, by random chance, by God, dependent on our believe systems. We are called to account and take responsibility for something that we have not chosen and, hence, are not responsible for. From this perspective self-formation might be understood as taking responsibility for what we are not responsible for but, at the same time, cannot simply detach ourselves from. Intelligent, emerging technologies promise us more, and possibly even total control over our lives: improvement of our neural organization and capacities, reshaping our motivational patterns and emotional responses in ways we deem healthy, mastery over our biochemistry, etc. As a response, Michael Sandel – an influential critic of human enhancement technologies – claims that technologies that intervene in our genetic make-up threaten to banish our appreciation of life as a gift and will destroy our openness to the unbidden. We must, in other words, stop wanting to control everything, otherwise we will ultimately be unable to cope with anything. In this presentation I will investigate to what extent human enhancement technologies will disrupt the view that who we are is beyond our control, and examine how this potential disruption will affect the proposed idea of self-formation.

A third person attempt at getting to the first person experience: assessing coping in non-communicative patients with a locked-in syndrome Marie-Christine Nizzi, Harvard
Psychology Department; Steven Laureys, Harvard University; Christine Moroni, Université Lille

Objectives: In the United States, where 795,000 people have a stroke every year, stroke is the leading cause of paralysis, affecting nearly 1.8 million persons. Yet we have no rehabilitation protocol aiming to optimize coping and resilience in these patients, in part because we don’t know how to assess their first-person experience from the outside. Patients in a locked-in syndrome (LIS) experience a full-body paralysis with no cognitive impairments. They present a high-stake and unique opportunity for a post-phenomenological approach to inform medical care. Methods: In this study, we used the Brief COPE (Carver, 1997) and the Self Continuity Questionnaire (Nizzi et al., 2012) to investigate how different coping strategies relate to multiple subjective outcomes such as preserved sense of self, suicide ideation and quality of life. We surveyed 44 chronic LIS patients in 2010 and 2016. At follow up, 9 patients had died and 18 responded. Results: In line with previous literature, we parsed coping strategies into active vs avoidant coping. Active coping was correlated with quality of life, sense of self and body representation, but negatively correlated with depression ($r=0.3$). Avoidant coping was negatively correlated with body representation ($r=-0.5$), sense of self ($r=0.5$) and quality of life ($r=-0.3$). Importantly, avoidant coping was correlated with suicide ideation in the past 6 months ($r=0.5$) and with depression ($r=0.6$). Conclusions: In our sample, active coping strategies were optimal to support post-stroke quality of life as measured by multiple indices. Practice implications: Connecting the subjective experience of patients to quantifiable constructs, informed with ideas from postphenomenology, opens leads to train patients in subjectively and measurably more effective coping strategies to support their sense of self after a stroke.

The Moral Mediation of Sex Selection Practices Olga Kudina, University of Twente (the Netherlands)

A possibility to select a sex of a future child has been available since early 90s. Nowadays, the only widely accepted reason to allow sex selection is to prevent transmission of genetic diseases. However, in the case of the USA and few other states, a reason of family balancing is also sufficient to legally apply for the procedure. It is primarily the use of SST for social reasons that caused a wide international debate. In either case, the technology behind SST is expensive and does not immediately provide a guaranteed result. However, a recent invention of the researchers from the University of Twente in the Netherlands can challenge the current technology by offering a cheap, safe and secure way of sex selection. In anticipation of this new technology, it is wise to open the societal debate concerning sex selection and review the question “To select or not to select”. I will investigate this issue with the approach of technological mediation (Verbeek, 2011) to understand how SST mediates the way people reason with and make decisions concerning childbearing. Accounting for the moral charge of this technology will provide an informed grounding for thinking about how to find a place for sex selection in society.

Chair: Don Ihde, Stony Brook University

071. Studying Data Critically I

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 5 - Riverway

The goal of this track is to continue to deepen and expand the development of critical data studies within STS. STS research has investigated the ontological and epistemological (Craig and Thatcher, 2014; Kitchin and Lauriault, 2014; Leonelli, 2015), social, ethical, philosophical, and sociotechnical (Neff and Fiore-Gartland, 2015; Seaver, 2015; Beer) consequences of the emergence of data and computational practices as processes of contemporary knowledge production. This panel track invites scholars who are investigating the epistemological challenges that data scientific processes of knowledge production present to more established applications of scientific methods. We invite papers that investigate how data science is augmenting, subverting, inverting, and otherwise altering the way knowledge production operates. In particular, we are interested in domains including astrophysicists, genome panomics/precision medicine researchers, neuroscientists, agronomists, ecologists, political scientists, sociologists, business and financial analysts, mathematicians and artificial intelligence researchers. Methodologically, we encourage papers that utilize quantitative and qualitative methods, including standard and trace ethnographic approaches. We invite: 1. Situated case studies of data science in action in particular domains especially the sciences. 2. Efforts to “provincialize” (Chakrabarty, 2007) the current mainstream data/computational narratives and provide space for expansive data discourses. 3. Work that offers a clear articulation of data science studies situated within a Science and Technologies Studies theoretical and empirical context. 4. Methodological considerations of the digital and analog toolbox necessary to conduct multi-sited, trans-disciplinary, human space. 

Participants:

Racial Bias in the Representation of Medical Evidence: Constructing a More Inclusive Picture of Health Jordan Eschler, University of Washington; Jaime Snyder, University of Washington


Seeing Like A Platform: The Tensions of Data-Driven Knowledge Production around MOOCs Shreeshar Kelkar, University of California, Berkeley

Based on a two-year ethnographic study of the infrastructures
being produced for MOOCs (Massive Open Online Courses), primarily the edX organization, this talk documents the tension in the MOOC world between two different visions of knowledge production. On the one hand is the outcome-focused research on engagement carried out in Silicon Valley corporations through massive A/B tests; on the other, is the publication-focused research on "learning" carried out in academia. Each approach "sees" data differently: for the former, data needs to be "big," messy, and ripe for correlation-mining; for the latter, data needs to be structured, specific, and robust enough to be the basis of a causal claim. In MOOC infrastructures, which span corporations and academic research labs, both approaches operate simultaneously with considerable friction; this is partly the result of the "platform" model of social organization: in the edX ecosystem, the software and data production is centralized in the edX organization while the production of everything else (courses, education research) is distributed across edX's partners and clients. When the edX organization released its much sought-after A/B test feature, which allows even instructors to carry out small experiments to find out what "works" best, it was trying to bridge existing divisions of labor: between instructor and researcher, between instructor and information worker. While existing studies of platforms have focused on "datafication"—the extraction of economic value from data—this talk argues that the "platform" has the potential to shift the practices of knowledge production.

The Algorithmers Charlotte Mazel-Cabasse, UC Berkeley

This paper is based on an anthropological research among scientists and data scientists (the algorithmers) developing a data science infrastructure. Based on two years of field research, this paper reflects on the role and impacts of open source computational science packages, methods and workflows on: 1. the processes of preservation (of local and scientific knowledge), negotiation (of the different epistemologies) and decision making. 2. the anthropological sense making process. Following a symmetrical anthropology approach drawing from Michel Callon (1986), I want to argue here that the design of these open source computational science packages, as well their implementation, can be connected to the concept of synchronic or asynchronous awareness (Doutrih, 1997) and are, de facto, transforming the way epistemologies are re-structured and re-articulated with each other (Edwards et al., 2012; Latour, 1991; Law et al., 2013). I will also discuss the idea that algorithms should be defined by both a system of abstract equations (Theory) and their situated material implementations (Praxis). They require from the scientists (the algorithmers) what Aristotle has described as Phronesis. As opposed to Sophia, which is the capacity to resonate about theoretical and universal truth, Phronesis is for Aristotle the applied, domain oriented, form of reasoning engaged to an end. In Phronesis, require techne (or what we call skills) but also wisdom and care about how to achieve this goal. To conclude, this paper will open the discussion in a heuristic fashion on the potential (or the lack of thereof) of computational science tools, practices and interfaces as a new “place” for situated narratives and knowledge production within academia.

The Digitalization of Law: How Technologies of Writing Shape the Law, 1980-2010 Thomas Streeter, University of Vermont

Modern legal regimes are inconceivable without formally organized systems of writing, storage, sorting, and retrieval; this is more certain than that the law enacts justice. This paper, part of an ongoing project, approaches the law roughly like Latour’s The Making of Law, as a mix of routinized face to face interactions interwoven with and mediated by writing, storage, and retrieval technologies. The study spans several decades, however, during which law has been moving from paper- and print-based systems to digital ones. Evidence includes the political economy of the legal database industry, a series of interviews with legal professionals in a number of “big law” Manhattan firms, and secondary analysis of trade and scholarly writing about uses of digital technologies such as eDiscovery and electronic legal databases. The focus in this paper is on the tradition of litigation discovery, one of the core sources of labor and income of big law firms, in which firms turn enormous collections of corporate files, emails, and more into legal documents. Originating in the 1930s with the intention of creating efficiency and transparency, discovery has since become intricately complex and ferociously competitive. As discovery has transitioned from work rooms stacked high with boxes of paper files to hard drives containing terabytes of emails, the terrain of discovery has gradually expanded, in a kind of data arms race driven by a mixture of futility to legal procedure and economic competition. The paper argues that digitalization has made the law more liquid. Supreme Court justices with Google at their fingertips write ever longer decisions with ever more wide-ranging citations, legislation is routinely passed that is too long to be read by any single individual, and materials involved in litigation discovery grow ever more voluminous. Legal indexing of bound volumes had an aura of fixity. Keyword searches in sprawling databases, in contrast, leave the field churning after a constantly receding horizon of "effective management of information." Law becomes increasingly without boundaries, spreading out in all directions in a way that troubles its ability to make decisions rather than arguments, to come to closure. Law thus becomes simultaneously more impenetrable and more politicized, which suggests an explanation for the current rage against "the administrative state." Sample sources Charles P. Kindleberger, "Chaos, Cyberspace and Tradition: Legal Information Transfigured," Berkeley Technology Law Journal 12 (1997): 189. Bruno Latour, The Making of Law: An Ethnography of the Conseil d’Etat, 1 edition (Cambridge, UK; Malden, MA: Polity, 2009).

Visual Thinking: Unpacking Use of Visuals in Data Analytic Learning and Beyond Samir Pasht, Cornell University

The growth of data-driven applications has led to increased interest on part of social scientists in developing critical forms of data literacy to help evaluate the knowledge produced with and through algorithms. Within this endeavor, in this paper, I focus on critical forms of literacy for data visualizations. Contemporary social science work on data visualizations tends to focus extensively on data journalism, which remains but one part of data analytics’ visual discourse. In my own research on learning environments, I found that visuals also play a key role in how algorithms are demonstrated to and applied by would-be data analysts. In this paper, I build on social science work on vision (e.g., Goodwin) and scientific representational practices (e.g., Letch) to show how learning data analysis also requires learning forms of ‘visual thinking’ i.e. thinking with and through visuals. An instance of this can be seen, for example, in the use of graphs/matrices to generate order and organization, enabling students to see data in forms amenable to human perception and action. I use two sets of empirics for this argument: participant-observation of (a) two semester-long graduate level data analytic courses, and (b) a series of three data analytic workshops organized at a major U.S. East Coast university. My aim in this paper is to show how the vocabulary of visual thinking enables us to unpack data visuals not just as representations, but also as sociomaterial artifacts constituting the very practice of data analysis – well beyond the immediate contexts of the classroom.

Chair: Laura Noren, New York University

072. "NSF speed dating" with STS Program Director Fred Kronz

Special Event 10:00 to 12:00 pm Sheraton Boston: Floor 3 - 3rd Floor Registration NSF STS Program Director Fred Kronz will be on hand to listen to STSers pitch their research proposal ideas and provide direct feedback. Look for a
sign-up sheet at a table near Registration to reserve a 15-minute spot.

073. Coffee Break
Break
10:30 to 11:00 am
Sheraton Boston: Foyer

074. Feminist STS Analyses of Reproductive Medicine II: ARTs
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon A
This panel is centered around applying feminist STS perspectives to the study of human reproduction. Papers will explore how reproductive practices and artifacts are shaped by personal and cultural meaning while being at the same time embedded in local, national and transnational politics. Feminist STS authors have drawn attention to social inequalities perpetuated through the use of assisted reproductive technologies, new forms of contraception, prenatal genetic testing, as well as other reproduction-related practices impacted by new scientific and technological developments. We seek to further conversations about reproductive medicine and how it can both reinforce and challenge existing inequalities. This panel will give particular emphasis to the ways in which contraception, fertility, pregnancy, and birth intersect with identity categories such as gender, class, race, and sexuality. Critical perspectives on the role of government and public policy will also be central to our inquiry, but we will remain attentive to the health issues, needs and lived reproductive experiences of individuals across different contexts. Following this line of inquiry we aim to situate feminist perspectives on reproductive politics into larger STS frames such as biopower and biomedicalization, while at the same time problematize the implications of ideologies and policies for reproductive practices across the world. We welcome submissions from scholars who explore historical and current power dynamics that shape reproduction in global contexts.

Participants:
International Technologies and National Regulations: Limiteds of Regulations on Reproductive Technologies in a Globalized World
Skye Miner, McGill University
Assisted human reproductive technologies (ARTs) create the possibilities for new familial formations with the consumption of new medical technologies. For in vitro fertilization (IVF) involving donor gametes, this consumption is based on the availability of women's bodies to produce gametes. This availability is not only dependent on altruistic marketplaces, where fertility clinics rely on gendered conceptions of femininity and gift-giving, but are also reliant on government acts which attempt to regulate appropriate standards for giving. In Canada, the Assisted Human Reproduction Act (AHRA), governs gamete donation by criminalizing the buying of donor eggs and sperm. This criminalization of the buying of gametes is said to make the donation process more "ethical," often relying on the altruistic giving of gametes by family members and friends. If family members and friends are not available, intended parents are often instructed to find an egg through a Canadian donor agency, to buy a frozen egg from a United States egg bank or to travel abroad. Thus, despite the intentions of the AHRA, commercialization of egg donation still occurs. Through in-depth semi-structured interviews with fertility clinics, fertility counselors, fertility lawyers, egg donor banks, intended parents and donors, I explore how these stakeholders navigate the AHRA, defining their particular use of donor eggs as fitting into the act. I also examine how the ability to transport frozen eggs across borders creates a new reading of the act, distinguishing between Canadian and non-Canadian donors. My paper examines how the perception of the ethical use of technologies changes depending on the location of use, and argues for a global analysis of fertility technologies, one that takes into consideration multiple and conflicting regulations.

Regulating Global Surrogacy: Law’s Relations in Family-Making
Sonja Van Wichelen, University of Sydney
Biomedical technologies such as genetic testing and assisted reproduction are increasingly challenging the constitution of families, including legal definitions of family and family life. Transforming the nature of law around parenthood and legal personhood, these developments carry significant implications for the notion of “rights” in the pursuit of justice. The ramifications are most visible on the borders of the nation-state where confrontations occur between legal and cultural systems that embrace different paradigms of reproduction. My paper for the 4S meeting explores such confrontations by examining the legal discussions around the transnational regulation of surrogacy. Following a significant increase of cross-border surrogacy arrangements and highly exposed cases in which children were abandoned or rendered stateless, judges and politicians across affected nation states called for a global regulation of the phenomenon. The appropriate legal institution assigned to do this work is the Hague Conference for Private Law (HccH). My paper examines what it is that should be accomplished by the creation of a possible Hague Convention on International Surrogacy. More closely, I focus on the analogy drawn by lawmakers between surrogacy and adoption and investigate what this analogy is doing to kinship knowledge and legal thinking. I demonstrate that although the dichotomies between nature and culture, or biology and sociality, are held in place when defining what adoption and what surrogacy entails, the subsequent outcomes of adoption and surrogacy arrangements generate biol egal configurations of kinning. Moreover, I argue that in cross-border situations, biol egal kinning is inextricably entangled in global reproductive markets, which explains the insistence of convention makers to focus on safeguards. Law’s refusal to allow economic and consumerist thinking to inform family-making practices has a distinct status in Euro-American legal thinking and I explore in the final part what consequences this status has in the context of globalization.

Traveling for Treatment. Bending the Law on the Boundaries of Ethics
Stine Willum Adrian, Aalborg University
When fertility travelers from around Europe, cross the border to Denmark to obtain fertility treatment combined with sperm donation, in most cases they travel, because legislation in many European countries still discriminate against fertility treatment of single women and lesbian couples. To go through insemination or IVF in another country, a great work of logistics is involved regarding traveling arrangements and treatment coordination’s. In this presentation, I inquire into what it entails to travel across national, legal and ethical borders for fertility travelers going to Denmark. How do fertility travelers account for the bending of the law and its moral implications, the coordination of travels, and experiences of fertility treatment, as the treatment in ones home country is perceived as illegal? What different subversive accounts are narrated by the fertility travelers on the legal and ethical boundaries, defined by different state policies? Methodologically, the presentation draws on an ethnographic fieldwork at a Danish private fertility clinic. It was carried out during spring 2012 and 2013, and includes interviews with 27 women with or without a partner. Informed by Feminist STS, the narratives are analyzed by drawing on Adele Clarke’s situational analysis, and a situated feminist ethics inspired by Karen Barad and Donna Haraway.

Stay Home or Go Abroad?: Egg Donation in Japan-Minori KOKADO, Osaka University; Japan; HYUNSOO HONG; Azumi Tsuge, Meijigakuin University
In this paper, we will examine the literature concerning the recent of reproductive tourism—specifically, Japanese citizens who are seeking egg donation services. Assisted Reproductive Technology (ART) using couple’s gametes is widely accepted in Japan. The number of ART cycles using a couple’s own gametes is the highest in the world; however, the success rate isn’t high. This is said to be largely due to the lack of egg donations and the fact that older couples tend to use their own gametes only, decreasing the success rate of ART. No laws regulate ART practices, and the Japan Society of Obstetrics and Gynecology’s (JSOG) statements only act as guidelines. The necessity of creating regulations has been pointed out. Regarding egg
donation, it is still a marginal practice in Japan. JISART (a group of affiliated clinics) still has a domestic egg donation in 2007, and a NPO undertook the process to intermediate between couples and egg donors from 2012. Nevertheless, the number of domestic egg donations is still low. According to previous studies and newspaper articles, those who seek egg donation or surrogacy often go abroad. The most popular destination is the United States; but there has been a recent increase in visiting countries in Asian, for example Taiwan. Through examining the literature on this subject—including academic papers, newspaper articles, as well as information given by clinics who accept foreign patients including Japanese—we have attempted to get a clearer picture of egg donation in Japan as a whole. Some of the issues that we will discuss are as follows: why domestic egg donation is still so marginal; why recipients choose egg donation, and how they decide go abroad; who are the donors, why they donate their eggs, and what are their motivations. We will discuss some of the specific problems in Japan, as well as some of the common issues surrounding reproductive tourism. Our hope is that we can contribute to a better understanding of how our society can make use of ART.

Chair: Skye Miner, McGill University

075. Interrogating Food Science and Technology II
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon B

It seems fashionable in a range of circles—nutrition, social justice and sustainability advocacy, slow food—to critique food and agricultural sciences. However, outside of agricultural historians, STS scholars have largely left food and agricultural scientists, their labs, and their technologies, unexamined. Perhaps this is due to these disciplines’ service nature—their dedication to solving problems for the agricultural industry. This may be a missed opportunity: Apostolos Geronas (2014) suggests that the most radical shifts in twentieth-century scientific knowledge making occurred in “grey zones” where the academy interfaces and compromises with industry and government. Few spaces of scientific knowledge production are as tightly imbricated with industrial agendas and government priorities as food and agricultural sciences. Since the early days of the Green Revolution, scientists and engineers have become primary knowledge-makers in producing food that is good to eat as well as determining what food is good to think (Lévi-Strauss 1962). We invite papers that explore the grey zones where industry, food and agricultural sciences, and governance meet. How has the development of a science of food in these zones shaped the partnerships at the heart of the green revolution, and our food (and other) landscapes? How has the growth of a cadre of food and agricultural experts “black boxed” (Latour 1999) what makes food good, as well as what is—and is not—food? How have instrumentation, measurement, and technology shaped understandings of nutrition and food quality? What worlds are produced, and which are erased, by the scientization of food?

Participants:
Making Meaningful Differences: Meta-Analyses on Organic Agriculture as Contested Zones of Science and Politics Tomi Lehtimäki, University of Helsinki

This presentation examines interactions between agri-food science and politics related to organic agriculture. Organic agriculture—as a critical alternative towards conventional food production—can be interpreted as an attempt to open up the discussion on what is considered to be quality food and, more generally, what should be the right form of production. In general, organic agriculture has questioned the industrialization of agriculture and the use of technology in contemporary food production. However, to be able to challenge conventional ways of food production and to be a legitimate alternative, organic needs have a meaningful difference compared to conventional.

This meaningful difference has been a debated issue: whereas for some organic food presents viable way to transform food production into a more ecological form, and in general a more ecological way of life, to others it has appeared only as scientific and not as a political change. Recent studies have attempted to grasp the difference between organic and conventional production and food. In this presentation I examine the ways in which the difference between organic and conventional agriculture has been constructed in agri-scientific meta-analyses, and how these studies have been interpreted in subsequent public discussions. The focus of these meta-analyses and discussions has been whether organic agriculture can produce real differences in terms of product quality and environmental impact. Thus this study contributes to the discussions on STS on the making of relations and enrollment in networks.

Narrow ‘Scientific’ Indicators as Normative Visions: Analyzing Food Security, Yield and Alternative Criteria Brian Wynne, Lancaster Univ.; Georgina Catacora-Vargas, AGRUCO/UMSS

Influenced by the UN Food and Agriculture Organization definition of food security—focused on availability, access, stability and utilization—policy and decision making has favored industrial monocrop and export-based agriculture by placing ‘yield per crop’ as key indicator of the contribution to food security. Accordingly, ‘yield’ (the volume of one crop’s produce per unit area) and ‘yield growth’ have been instrumental in defining what good agriculture is. In this way other elements for healthy nutrition (such as diversity and quality) are not considered, even less the social-ecological impacts of industrial monocropping and commodification relevant to food security (like access to land, seeds and other production resources). The latter criteria have been included in the concept of food sovereignty and although some countries acknowledge it in their legislation, no concrete implementation of it yet exists. Based on empirical data from three different production-systems in Bolivia (industrialized monocropping, indigenous, and agroecological) we show the inadequacy of ‘yield per crop’ and ‘yield growth’ as sufficient indicators for measuring agriculture’s contribution to food and nutrition security. Seeking for relevant feasible indicators, ‘agrobiodiversity’ and ‘nutrient harvest’ per unit area are analyzed as more integral criteria for a better evaluation of contribution to food and nutrition. With this empirical example, we discuss on how scientific indicators themselves embody and tacitly promote what are normative imaginaries of human society. This represents an epistemological and therefore methodological shift in what entails food and nutrition security measurement, which also has the potential to influence agricultural and food-systems configurations.

Exploring Predictions about Hybrid Potato Breeding Rosanne Edelenbosch, Rathenau Institute; Koen Beumer

Traditionally, the development of a new potato variety takes over twenty years. In this paper we investigate predictions about hybrid potato breeding, a development that could potentially have a great impact on the potato sector. This technology could greatly increase the speed of breeding and might enable potato propagation through seeds instead of the currently used disease-susceptible tubers. The Dutch start-up company behind this technology received substantial government support and has already licensed its technology to one of the largest potato breeding companies in The Netherlands. However, it is clear that the socio-technical future of this technology is contested among stakeholders. We have conducted over 20 semi-structured interviews with stakeholders within and outside the Dutch potato sector, including actors from governments and civil society organizations, about their expectations of hybrid potato breeding. We see that in some predictions, the potato production chain is leading. Others involve the “creative destruction” of this production chain. Yet other predictions focus on a desired system change—directed at economic viability or sustainability. With this paper we aim to get a better understanding of the ways in which, on the one hand, predictions are related to views about “how the world works”, and on the other hand they express (promises about) “how the world should change”. On the basis of this
Investigation into embodied practices of prediction, we create a typology of four different kinds of predictions, each of which establishes a distinct human–nature relationship.

The (In) Sensibilities of Regulating the Natural: Reading the FDA Docket charlotte biletzoff, UC Davis

Between December 2015 and May 2016 the US Food and Drug Administration received over seven thousand comments – from both industry stakeholders and the public - in response to its request for information and public comment on whether, and if so how, the agency should define the term “natural” and how it should determine appropriate uses of the term on food labels. This paper wrestles with the (in)sensibilities of regulating the natural that is revealed in this FDA docket. On the one hand, it pushes against the criticism of natural food claims as meaningless and natural food consumer as marketing dupes, arguing that the comments reveal food as an overlooked site for public engagement, where publics are engaging in what Gwenedlyn Blue (2009) calls “politically motivated challenges to techno-scientific practices, policies and institution.” While taking public sense-making seriously, this analysis also pushes against the urge toward purity and explores the moral and political dangers inherent in the valorization of “real” food over and above “processed” or “artificial” food. Wrestling with these and other (in)sensibilities, the paper explores the formative role that both contests over the boundary of the natural and unexamined assumptions about what counts as food play in today’s food politics, situating concerns about the role of science and technology as central to current debates about the future of food.

Chair: Christy Spackman, Harvey Mudd College
Discussant: Jacob Lahne, Drexel University

076. Anthropocene, Capitalocene, Technoscience II: Enacting Future(s) in a Capitalocene-Anthropocene Frame

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon D

The goal of this panel is to explore the trialectical meeting of STS, Anthropocene and Capitalocene approaches. The concept of the Anthropocene and its planetary scale challenges STS myopia and ethnographic methodology. This is the first tension – between a global (planetary) scale of thinking and a local methodology of research. But there is a second, more important tension: standard interpretation of the Anthropocene offers a very Eurocentric and depoliticized approach to history. The switch from Anthropocene to ‘Capitalocene’ forces us to reconsider a more politically historically situated starting-point: “The Capitalocene signifies capitalism as a way of organizing nature—as a multispecies, situated, capitalist world-ecology” (Jason W. Moore). World-ecology analysis (an ecological version of World-System Analysis) combined with STS gives us an opportunity to engage in a strictly critical, “glocal” situated analysis. There is also the third tension between science as expertise in the dominating Anthropocene narrative, and the hot, fragile and complex science as viewed by STS. We propose our panel as a trialectical research platform which will allow us to rethink and “unthink” concepts of development, innovation, knowledge, technoscience, nature and capitalism. We would like to focus on the mutual (re)creation of knowledge (technoscience), nature and capitalism. For the panel we propose the following areas to explore: methodological and ontological analysis of holistic/ecological ontology of human societies (oikoi and biocentrics); the future of structures of knowledge challenged by the Anthropocene/Capitalocene; methodological discussion about possibly situated and critical “glocal” research; relations between technoscience and capitalist appropriation of Nature; sociohistorical analysis of anthropogenic and technoscientific (re)creation of Nature; possible use of Anthropocene as a Utopian rather than descriptive term.

Participants:
Crafting Nature, Collecting for the Future: Towards an Ontology of Museum Genomics Adrian Van Allen, UC Berkeley

Examining the material-semiotic culture of museum genomics, my ethnoscientific research focuses on the Global Genome Initiative at the Smithsonian National Museum of Natural History in Washington D.C., a project that seeks to preserve vanishing biodiversity through cryo-preserving half of the families of life in the next six years. Examining how biotechnology is redefining and preserving “life itself” (Foucault 2003; Kowal and Radin 2015) through specimen preparation methods I use craft as my method to gain a first-hand understanding of how “nature” is made and remade in the back rooms of the Smithsonian. This marks a return to encyclopedic collecting with biotechnological tools, with past and future entangled in changing material practices. Cryo-collections are made to matter (Barad 2003) as ontological embodiments—through their preservation, negotiated use and continuing re-evaluation. As specimens’ biologies are unbound (Helmarich 2010) into differently valued parts and pieces, spread across the spaces of the museum—from frozen tissue samples to preserved bird skins—it is important to remember that specimens remain sites of contested classificatory meanings, objects of shifting value, and (dis)embodiments of hand-crafted “natural orders” in the context of the Anthropocene. Through exploring museum specimens in biographical terms, as mobile and transformative of a variety of relationships, I reiterate that there is multiplicity not only between but also within objects. Genomic collections in museums embody multiples kinds of significance, telling complex biographies of latent life (Radin 2013), and signaling different ways of being as living things are transformed into data through various material practices.

Co-Producing Risk Assessment and Consequences: Climate Change Adaptation Planning In New York City Myriam Figueroa, Cornell University

This project examines the development of climate risk assessments, and their use in adaptation planning for American cities. The study centers on the co-production of climate risk analyses, and the associated social experiences we characterize as climate risk. Knowledge production about climate risk, and people’s experiences of climate risk are mutually constitutive processes (Jasanoff, 1999) I will conduct a close appraisal of the practices, logics and actors (governmental and non-governmental institutions) which help produce climate risk assessments. The project will focus on New York City as a case study. Climate risk assessments for cities are produced in the context of institutions, where power contests necessarily influence knowledge creation and the urban governance process. Such reports are embedded in broader social and political settings where climate change knowledge is developed and passed on by engaged actors, through practices and logics operating in cities and beyond (e.g., at the Intergovernmental Panel on Climate Change, governments at all levels, NGOs and other private sector entities around the world). This project will include two sections: a) a basic account of knowledge production about climate risk by the New York City Panel on Climate Change (NPCC); and b) an initial description of those elements -- actors, practices and logics--that link knowledge production to hazard response efforts. Preliminary research suggests that the isolation of knowledge production from hazard response contributes to ineffectual institutional practices, in effect exacerbating vulnerabilities among low and moderate income communities.

Claiming and Making the Future in Climate Engineering

Research Sean Low, Institute for Advanced Sustainability Studies (IASS); Stefan Schäfer, Institute for Advanced Sustainability Studies

Research into the impacts of climate change, as well as of strategies to reduce them, is anticipatory: decisions in the present have to be taken on the basis of projected futures. Gauging the physical and societal implications of deploying solar or carbon geoengineering at planetary scales currently relies on speculative research methods, from modeling (earth systems and impacts models, economic and game theoretical models, integrated assessment models) to more qualitative approaches such as
horizon scanning, Delphi surveys and focus group engagement, scenarios, analytical reasoning, and simulative gaming. But each method comes with different objectives, epistemologies, disciplinary communities, and access to decision-making processes. The climate engineering discourse will serve as a case study by which to examine how this interplay of future-oriented methods, as deployed by an interdisciplinary community of researchers, shapes the intellectual economy of an emerging technology field. Separately, are these comparable or orthogonal methods in engaging “the future” as an object of study? As a whole, is knowledge and decision-making - on potentially game-changing technologies that do not exist – better served? Through different methods, scientists (and other stakeholders) attempt to predict the future, explore possibilities, and present alternatives. In doing so, their conceptions of the future influence scientific and policy agendas today.

**Green-Washers, Prophets of Doom or Vault Constructors?**

Noosphere and Knowledge Policies in Anthropocene

Andrzej Wojciech Nowak, Philosophy Institute Adam Mickiewicz University

Relations between knowledge production and capitalist regimes of accumulation and commodification are intimately intertwined. Modern science (technoscience) pursue for endless accumulation of knowledge is intimately entangled with capitalist accumulation of capital. My research question is connected with our diagnosis of near future and it depends on results of Anthropocene-Capitalocene debate. Future of knowledge and possible strategies depends on our standpoint in this debate. One is associated with Anthropocene as techno-salvation „gospel”, the second with critique of concept of Anthropocene formulated by Jason W. Moore under banner of Capitalocene. It is rise a question – how our knowledge policies are influenced by this debate? I propose to distinguish three strategies: (1) Green-washers -(naïve?) techno-solutionism and adaptive strategy to capitalism. (2) Prophets of doom - dystopic over-criticism. (3) Vault-constructors -self-limited Utopia and quest for preservation beyond their consumption? Nuancing ideas to reify hearing as a separate sense or as disciplined listening to identify sound ‘itself’ or soundscapes and rather broadening the focus on forms and patterns in the acoustic milieu as relational, we invite papers attuned to (en)sounding as method and approach. Approaches that explore ways we hear in-between, mapping meaningful events, moments, affects 'ionorous archipelago' (Bonnet 2012) or ‘sound blocks’ (Deleuze & Guattari 1980) are of particular interest. This can include research done through recording, playing an instrument or through any other means of attuning to acoustics as ways of both understanding and constituting lifeworlds.

**Participants:**

**Cynical Sounding: The Dappled World of the Dog’s Bark**

Matthew Battles, metaLAB at Harvard/Berkman Center

Ethologists like Ray and Lorna Coppinger describe the dog’s bark as an “emergent” behavioral phenomenon (2015), its variety and richness redicule to a few algorithmic, determinative rules. But when I listen to my daughter howling with the one-year-old mixed-breed puppy that lives in our house, a different set of rules, and soundings, seems to be in play. Indeed, the barking of the dog creates sound worlds of richness and variety. The determinative rules sought by classical ethology are operant, albeit in dappled states (Cartwright 1999), ramifying and resonant, imbricated in realms of sensory, affective, and semiotic intensity. In the everyday, the bark of the dog registers a spectrum from alarm to the absurd—yet we also recognize in its timbres the sounding power of the Cynic, embodied classically by the “dog-man” Diogenes, whose critiques made virtues of humility and abjection. Recent popular accounts of dog behavior weave together discourses from genetics, behavioral ecology, paleontology, evolutionary psychology, and public health—and yet beyond these, the dog’s bark resonates in a dark abundance of criterial relations that make the dog what Donna Haraway (2003) describes as our “partner in the crime of human evolution.” This paper will explore and situate some of the shifting sonorities created by the vocalizations of Canis familiaris, the domestic dog, as it mingles in human institutions. The presentation will be accompanied by an excerpt from an audio work exploring affective and expressive dimensions of canid-human acoustic ecology, charting some of the ways in which the dog’s bark sounds human and nonhuman worlds.

**The New Soundscape Cartographers**

Mickey Vallee, Athabasca University

Soundscape ecology is an interdisciplinary scientific field that differs from what is conventionally understood as a soundscape. An integrated knowledge base of landscape ecology and acoustic sciences, it is based on a keen awareness of biodiversity protection with an eye to preserving natural habitats, insofar as it analyses sonic data to measure the diverse spaces between forms.
Chairs:

Julie Laplante, University of Ottawa
David Jaclin, University of Ottawa

Discussant: Stefan Helmreich, Massachusetts Institute of Technology (MIT)

078. Objects, Made and Moved: Coherence and Materiality in the Making of Post/colonial Scientific Discourses
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon F

In this panel, we investigate the coherence of objects as they are made or moved across boundaries acquiring and producing new iterations of scientific discourses at the intersection of post/coloniality and modernization. We investigate what materiality means, how epistemic valence is awarded to these traveling objects and how coherence is produced in narratives of technoscience. In the first paper, the Ga deities, visiting Accra during harvest season make an imprint in the registers of the modern state by becoming objects of scientific knowledge. Indigenous claims about the deities being disturbed by (Christian) noise were translated in decibels measured by government committees. Similarly, the second paper analyzes the itinerary of Florida Water from New York to Jamaica. Originally produced within narratives of colonial medicine, Florida Water becomes a religious article for Voodoo practices articulating new meanings of africanness and of tropicality as a scientific concept. Investigating transport and transporter, the third paper looks at protozoa traveling in the blood of a scientist from colony to metropole. Reimagining the diseased brown body in white skin (and white coats), Bilharziasis is disembodied and reproduced in scientific font. At another level, the fourth paper investigates the materials used in the Guatemala syphilis experiments. Objects as refrigerators, cafeteria utensils and sera created the infrastructure of traveling experiments in the postcolonial context. Finally, the fifth paper looks at the making of the mixed race woman as an object of scientific knowledge produced through discourses on biology, gender and race.

Participants:
Sacred Acoustic Inspectors: Ghanaian State and Noise-Abatement during the Homowo Festival
Marium Goshadze, Harvard University

Every summer, indigenous deities visit Ghana’s capital, Accra. To create peaceful environment for the guests, Ga indigenous priests introduce a “ban on drumming and noise-making”. Almost overnight, sacred silence blankets the city as nightclubs and dance halls close down and Pentecostal Churches subdue their services. The role of organized religion in the contemporary state remains an object of scholarly scrutiny. Since secular discourse takes the impotence of deities for granted, religious institutions are always represented by the “people of god/s” rather than the god/s themselves. Seeking to subvert these categories, this paper focuses on interreligious conflict in Ghana where the postcolonial state has become implicated in the subjection of Christian god to scientific scrutiny and has vouched to serve as the ears of Ga indigenous deities. Building on sonic theologies of the two religions, I argue that production and restriction of sound is determined by and performed for the involved deities. Hence, the complicity of the Ghanaian state in the management of the ban particularly, decibel-based and health-oriented regulation of Christian worship, represents an instance of the state appropriating self-regulating power of religious institutions via scientific lexicon, and more importantly, subjecting the involved deities to civil control. This intervention has ambivalent implications: on the most basic level, the state seems to employ science as a tool of secularization; on the other hand, however, the Ghanaian state is starting to speak for the gods in technoscientific lingo, thus contributing to their authority and relevance in the contemporary context.

Technologies of Infection: Trains, Telegraphs, and Tools in Guatemalan Experimental Medicine
Angel Rodriguez, Harvard University - History of Science

At the end of World War II, from 1946 to 1948, a United States
The Trans-Atlantic Schistosome: The wartime travels of Schistosoma haematobium between Cairo to New York

Jennifer L Derr, University of California, Santa Cruz

On October 9th, 1944, Claude Barlow, a parasitologist employed by the Rockefeller Foundation in Egypt, began a new journal describing his experience of schistosomiasis, a disease with which he deliberately infected himself. Endemic in Egypt, schistosomiasis is a parasitic infection that destroys the liver, kidneys, and bladder, even causing death, in its most severe form. Early in 1944, the United States Middle East Command informed Barlow that thousands of American soldiers would be stationed at Camp Huckstep, located between the Cairo suburb of Helipolis and the village of Al-Marg, whose canal was a source of schistosomiasis infection. Concerned that the infection might spread to American soldiers and then return to the United States, American scientists had become increasingly interested in the disease. Barlow’s self-infection provided a source of human samples of the parasite to researchers working in the United States; it also foregrounded an American scientist’s narration of the experience of schistosomiasis infection. This paper explores the travels of the Schistosoma haematobium parasite during World War II, culminating with Barlow’s self-infection and the research that it spawned. It interrogates the relationship between site-specific knowledge of the Schistosoma haematobium parasite and imaginations of the disease that it produces among different populations of human beings, specifically exploring how Barlow’s self-infection and his suffering in the United States and in Cairo, informed ideas about the experience of infection with Schistosoma haematobium in scientific communities in the United States and in Egypt.

The Itinerant Life of Florida Water: Profane Perfume, Colonial Cure, to African Diasporic Elixir

Khytie Brown, Harvard University

Florida Water cologne “mythologized in the annals of the New York Lannan and Murray cosmetic company’s careful historiography as perennial and unchanging- has in fact journeyed outside of the United States’ Euro-American luxury good market and has been given new life. The classic cologne has found permanent residence on the healing altars of Vodouizan in Haiti, Revival Zion practitioners in Jamaica, Lucumi devotees in the United States and among Peruvian shamans. Through analysis of historical-archival and contemporary marketing media around Florida Water, the paper illuminates the discursive and symbolic shifts that occurred as the advertising traveled from the United States to the colonial British islands and Latin America. It argues that, as Florida Water moved to the Caribbean and Latin America, the association between pharmacology and perfumery intensified, and it was refashioned through broader discourses on racial health and medicine. Florida Water, I argue, comes to function as a remedy for colonial anxieties, which manifested as tropical neurasthenia thought to have been caused by the strains of tropical life, affecting primarily missionaries and colonial administrators. However, its meaning is yet again recast and extensified as practitioners of African diasporic traditions have forged a relationship with Florida Water that subverts its colonial symbolism, and through their ritual practices, transmutes it into a form of spiritually healthful antidote to the conditions of colonialization and its aftermath.

The Ontology of a Mixed-Race Woman

Myrna Sheldon, Harvard University

During the nineteenth-century, novel ideas of race mixing emerged in the United States that were influenced by evolutionary models, particularly as expressed by Charles Darwin in On the Origin of Species (1859) and The Descent of Man (1871). This project examines the coming into being of the mixed-race woman as a scientific and cultural object during the nineteenth and early twentieth centuries in the United States. It focuses on nineteenth-century medical and scientific investigations into the anatomy, physiology, and sexual behavior of mixed-race women, religious arguments for the unity of mankind that nevertheless condemned interracial eroticism, as well as the lived experiences of mixed-race women through an analysis of court testimonies, diaries, and fiction. In doing so, this project simultaneously engages with scholarship in gender and sexuality studies, mixed-race and critical-race studies, the history of science, and the history of religious cultures in the United States. Throughout, I ask the question, “How does a mixed-race woman come into being?” a question that is simultaneously epistemological, material, and ethical.

Chair:
Ahmed Ragab, Harvard University

079. Bodies, Technologies, and In/Sensibilities in Movement II

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon G

A central and ongoing theme of works in STS concerns the entanglement and dis-entanglement of bodies and technologies. Bodies become enabled and/or disabled, move or are moved, through the distribution and coordination of materially heterogeneous entities. These processes may also be explored in terms of bodies becoming sensible and/or insensible. For example, in dancing, hiking, running, cycling, or other forms of everyday im/mobilities, bodies become entangled and disentangled with technologies, disciplinary techniques, environments, and more. In their material-collective movement, bodies learn to sense the world differently, such as through enjoyment, balance, or loosing oneself, all of which may equally include discomfort or pain. Bodies are not only multiple in their enactments, but also in the ways their senses are continuously re-formed with diverse material and discursive practices that enable and disable their movement. This panel welcomes contributions that explore the complex relationalities of bodies, technologies, and the enabling/disabling of their senses in movement. Questions to consider include, but are not limited to: As action is made (in)accessible to bodies, what becomes of their senses? How are bodies enabled and/or disabled from sensing? How do various (dis)entanglements of sensing bodies, technologies, and other entities affect one another? How are modes of sensing made durable? How do they fade away? The panel seeks a wide range of empirical cases and topics that explore these issues, and others related to the theme of im/mobile, dis/entangled bodies becoming in/sensible, using diverse methodological techniques.

Participants:
Enacting Lance: Singularizing (and Cleansing) an Extended Body in Techno-Sport
Samuel Haraway, University Of
Locative Media: New (Im)Mobilities of Bodies in Public

Schulz-Schaeffer, Technical University of Berlin

The focus of our paper lies on the (dis-)entanglements of bodies moving through hybrid spaces. Hybrid spaces are constituted as cyber-physical interconnections of material and virtual spaces enabled by specific smartphone apps (such as “Pokémon Go” or “Tinder”), referred to as locative media. These apps change the ways embodied actors sense their socio-material environments. Particularly, the navigation practices of younger people in urban areas are strongly affected by the diffusion of locative media. Some apps extend the perception of material spaces by including virtual creatures and objects; others serve as a social radar in everyday life to locate nearby friends or to look for potential flirt partners. We investigate new relational arrangements of bodies created by the use of locative media, asking whether using these apps opens up opportunities for new mobilities and sensibilities by creating new spaces of encounters, or rather establishes spaces of retreat leading to immobility and insensibility. This broader question has to be examined differently for the respective apps.

Walking the Walk: High Heels, Embodied Skills, and Sensory Thrills

Christopher Hesselbein, Cornell University STS

Walking in high-heeled shoes is considered, across many contemporary societies, as either an emblematic practice of feminine independence and sexual liberation or as a symbol of patriarchal oppression and mindless consumerism. In STS, however, high heels are not frequently considered as a technology despite their ubiquity as a material artifact of gender performance in everyday life. This paper argues for the importance of high-heeled footwear as a technological practice where bodies, techniques, and materials enable and enact particular forms of gender identity in which skill, affect, and aesthetics play a central role. Although shoes are not frequently seen as complex technological objects, both their production and consumption entail various sociotechnical forms of knowledge and skill. Designers and manufacturers of footwear are key to understanding how socio-cultural norms are created and maintained by being embedded in the material artifact through craft practices and sensory engagement with the materials of the shoe. Consumers of such commodities highlight how the meaning of such objects is negotiated through embodied accomplishment and affective experiences during the act of buying, wearing, and walking. This ethnography of the production and consumption of high heels in New York emphasizes the entanglement of body, materiality, and competency and their role in (de)sensitizing and (im)mobilizing us as we stumble and walk through the sociomaterial world. The paper further contributes to existing literature in STS on the co-construction of gender and technology and the role of embodied skill while underscoring the somewhat neglected role of affect, taste, and everyday materiality.

Sonic Experiments in Drone Warfare

Ayesha Omer, New York University

Dominant critical discourses on drone warfare structure the necropolitical sovereignty of the drone on its power as a visual and archival technology (Parks 2012, Feldman 2015). However, these critiques are oriented, positioned, and, therefore, foreclosed by the very gaze of the sovereign that they aim to reverse and deconstruct, and, thus, they cannot fully account for the particularities of social, affective and traumatic disfigurement produced by drone warfare. My argument attempts to decolonize this discourse by tracing the sound of drone warfare because—on the ground—the drone is rarely seen but it is always heard. Thus, my paper explores the ways in which sound modulates the bodily experience of space and time, and how sound is deployed by drone warfare to modulate a state of occupation over life on the ground. I approach this analysis through discourses of acoustemology, (Feld 1982, Cusick 2013) sonic violence, (Goodman 2012, Daughtry 2015) as well as testimonies of drone survivors in Pakistan and Yemen. My argument traces the ways in which the sound of drones first produces affective, traumatic memory of space and time that induces perpetual fear and anxiety upon listening to the drone. Second, the sound of drones restricts the body’s ability to move and participate in private, public, sacred and collective spaces—that are targeted indiscriminately by drone strikes. And finally, the sound of drones produces a state of occupation through testing the body’s limits of life and death (Puwar 2015), wherein the relationships to home, family, community, citizenship, are material sites of sonic experiments in drone warfare. Thus, my paper aims to reverse the sovereign gaze through a discussion of the sound of drone warfare that reverberates through bodies and land under drone occupation.

Chair: Robin Rae

080. Expert Opinions: How Social Scientists Influence Policymaking

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon II

This panel explores how social scientists have competed to shape policy in diverse domains including health care, education, marriage, and development. The papers presented foreground how debates within and across social scientific fields intersect with and are shaped by external political forces.

Participants:

How Sexuality Knowledge Shapes LGBTQ Sociopolitical Life: The Case of Expert Evidence in Obergefell

Jamie Louise Budnick, University of Michigan, Department of Sociology

The last decade witnessed an unprecedented prioritization of research on non-heterosexuality, leading to contestations over the validity and usefulness of this new scholarship. By interrogating the causes, context, and consequences of these debates, my project demonstrates the contested legitimacy of sexualities research, as well as the high stakes of social science on the...
national stage. I use comparative-historical methods to investigate how knowledge claims about non-heterosexuality circulate out in the world of public discourse and policy debates, and interrogate their technical production within social science scholarship. I draw on STS approaches to the politics of knowledge, the sociology of quantification and classification, survey methodology, and feminist epistemology to tell the stories of five knowledge claims about non-heterosexuality. Specifically, this paper draws on my analysis of amicus briefs, oral testimony, and judicial opinions in the Obergefell v. Hodges same-sex marriage case before the Supreme Court. Broadly, this project makes a case for the critical relevance of sexualities research amid the troubling skepticism and politicization now imperiling the potential for social science to inform and enrich sociopolitical life.

Economizing the Social: The Midcentury Emergence of Education and Health Economics Zach Griffen, UCLA

There was almost no research in economics dealing explicitly with education or health care before the 1950s. Rapidly thereafter, both education economics and health economics emerged as vibrant disciplinary subfields. This paper examines how the boundaries of economics were expanded to incorporate education and health in the 1950s and 60s, focusing in particular on economists’ efforts to maintain legitimacy in the academic field while also building the cognitive infrastructure to influence policy. Though some of the earliest developments in these domains were important contributions to economic theory proper, much of the effort to institutionalize both subfields was shouldered by organizations intent on rationalizing government decision making, such as the Ford Foundation and RAND Corporation. Using a variety of empirical sources, I analyze how education and health economics were assembled as interstitial spaces of social action. Contrary to Fligstein and McAdam (2012), who claim that social fields are like Russian dolls that can be decomposed into smaller and smaller fields with similar internal dynamics, I argue that these subfields should not just be conceptualized as miniature versions of the broader discipline of economics (which in turn should not be conceptualized as a miniature version of the scientific field). Rather, I demonstrate that the specific historical conditions and institutional constraints in which (sub)fields emerge have important effects on their structure. In turn, this affects economists’ ability to influence policy: despite similarly promising beginnings for both of these subfields, economists have not been equally successful in each policy domain.

Mind the Gap: Politics, Policy, and the Stylized Facts of Gender Inequality Daniel Hirschman, Brown University

The stylized fact of women earning “80 cents on the dollar” (the most updated version of a long-circulating figure) comes from a series of large scale household surveys that track aggregate discrepancies in earnings between men and women. These aggregate measures offer a simple index of gender inequality but, crucially, they do not provide (on their own) a theory of where that inequality stems from. Sometimes the fact circulates in an “intersectional” formulation, breaking apart gender and race as separate contributors, and highlighting the large gaps among women by race. As scholars of gender and racial equality note, very little of the remaining income gaps can be explained by the most obvious suspect, the classic discrimination of unequal pay for equal work. Instead, scholars argue that occupational choices, family obligations, differential preferences, and more subtle forms of discrimination explain most of the remaining gap. This paper investigates the history of racial and gender gaps by focusing on the production and circulation of the “top-level” claims about inequality. The most important sources for these claims are a small set of household surveys, especially the Current Population Survey. These surveys enabled new research programs in human capital theory, and a much finer-grained understanding of the dynamics of wage inequality, but one of their most powerful findings remains these simple gaps. Tracing these stories illustrates how stylized facts power academic research programs as researchers attempt to fill in the gaps (so to speak), while simultaneously serving as calls to arms in the wider public.

Fairness in the Field: The Ethics of Resource Allocation in Randomized Controlled Field Experiments Margarita Rayzberg, Northwestern University

Many in the international development community have embraced randomized controlled field experiments as the new “gold evidential standard” in program impact evaluation. Critics, however, argue that randomized resource allocation is unethical and have called upon the method’s advocates to consider its moral dimensions. My research intervenes in this debate by empirically investigating how researchers manage the perception of randomization during recruitment and implementation. Without the possibility of a placebo, researchers must frame the experiment as separate from the intervention for the control group—disentangling the research and intervention modalities lest the control group becomes aware of its treatment status and leaves the experiment. I find that researchers rhetorically and physically frame the experiment differently for the various participants. To do so, they mobilize what I call “technologies of opacity”; or tactics designed to obscure the uneven distribution of resources between the treatment and control groups. While these technologies work to preclude collective definitions of fairness in resource allocation, they do not successfully prevent overflowing (Callon 1998), or actions of confrontation and resistance that lie outside of the framing. In managing these overflows, rather than acknowledging their role in constructing a space of inequality, researchers displace the responsibility for randomization onto other actors.

Chair: Daniel Hirschman, Brown University
Discussant: William P. Deringer, Massachusetts Institute of Technology (MIT)

081. Making Sense of Autonomous Technologies II: Technics of Autonomy
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Berkeley

The 40th anniversary of the publication of Langdon Winner’s seminal work, Autonomous Technologies: Technics-out-of-Control (1977), provides an opportunity to reflect both on an increasingly automated Anthropocene as well as the field of STS itself at the opening of the 21st century. In 1977, when electronic digital computers still occupied entire rooms within the citadels of the military-industrial-university complex, AI and robotics were still largely arcane avocations of a few research teams and entrepreneurs. Today, smartphones with millions of times the power of those machines reside in the pockets of billions of people around the world; robotic beasts crawl over rubble to win prizes from DARPA; and consumer automobiles are (finally) beginning to drive themselves. Forbes magazine has already named 2017 “The Year of AI,” and China is poised to outpace the US and Japan combined in total numbers of industrial robots. R&D funding for autonomous technologies is at an all-time high, as are both optimism and fear about the futures they promise. Meanwhile, some of the world’s leading democracies struggle to function under conditions of electronically mediated information overload. How are we making sense of these technological transformations forty years after Autonomous Technologies? And how should we be? What still applies? What has changed? What have we learned since, and what remains insensible to us? This panel welcomes contributions on autonomous technologies, broadly construed to include historical and contemporary reflections as well as speculative and future-oriented pieces.

Participants:
Autonomous Vehicles As Sensing Robots and As Forms of Life
Charles Boyd, James Madison University; Chase Shelton Collins, James Madison University; Emily York, James Madison University; Shannon Conley, James Madison University

This paper reports on a novel and playful interdisciplinary
Two Issues in Human-Autonomous Car Interactions Keita Sugiura, Nanzan University

Human environment has started to become saturated with autonomous cars. In this environment, interactions between humans and intelligent cars present two social/ethical issues. This presentation aims to present the two problems and introduce a plan to host a constructive technology assessment workshop in Japan in order to discuss the issues among citizens, engineers, and regulators in the country. First, I will introduce a demonstration experiment of the robot car in Japan. Second, I will present the first problem of autonomous cars that arises from the fact that automated and non-automated cars possess different features and the need to know if other cars on the road are automated or non-automated. Therefore, the issue is whether the automation of a car should be mandatory, banned, or left to user discretion. In this part, I will cite the research by Waelbergs. Third, I will specify the second problem: in the event of an accident, we hope that an intelligent car will sacrifice the passengers in order to save many pedestrians, but we would like to buy a robot car that protects the passengers at all costs. Therefore, the problem is: how should an autonomous car be programmed? In this part I will cite the research by Bonnefon et al. Fourth, I will mention the plan to open a constructive technology assessment workshop with an STS perspective. Finally, I will summarize my presentation.

All Watched Over: Networked Agency, Autonomy, and Control of the Self-Driving Car Erik Stayton, MIT

In what ways are autonomous technologies expected to be autonomous? This question is not glib, but serious: for automated vehicles (AVs) in particular, popular imagination has found an object through which to express fear of technological autonomy in a day-to-day sense, that new technologies on the roadway will literally follow their own course without human oversight. And yet, all AVs today involve sociotechnical systems of humans and machines, and human-machine imbrication will only increase as these systems move from laboratories to roads: whether in the mode of the train operator, the air traffic controller, or the data center supervisor. Drawing from historical and ethnographic evidence about automation in other arenas (such as the work of David Mindell, Nick Seaver, Tarleton Gillespie), and from fieldwork performed within an autonomous vehicle laboratory, I argue that the human is very far from obsolete, and the automated very far from truly autonomous. However, AVs see the world very differently than humans do. The rupture we face is less one of full autonomy from human supervision as it is one of novel technologies of sensing and responding that challenge the ways we normally think about decision and control. I use the internally contested visions of human-machine imbrication to argue that the search for a "new ethic" for technology must attend to the ways that technologies of autonomy are embedded in larger systems. Building autonomous systems necessarily means designing networks of control within which human values are enacted and contested.

Dynamic, Multi-Factor Motivational Systems Are Required for Truly Autonomous Agents William McMillan, Concordia University

For artificial agents, whether physical robots or completely digital entities, to become truly independent and convincingly intelligent actors in the natural world they will have to gain a multi-factor, dynamic motivational system. Reinforcement-based approaches in AI such as Q-learning depend on single, static measures of "reward" in order to guide solution of a given problem. Animals and people are guided by many needs that vary in intensity with situation and deprivation. Maintaining physiological homeostasis, avoiding a sudden danger, solving a particular problem, and making long-term plans all are motivated by a multitude of factors in many different ways. At any particular moment an agent selects one or more behaviors that are highest in what can be termed urgency. To create an artificial analog of natural motivational systems, it is necessary to (1) choose categories of motivation, (2) define functions that yield urgency values statically, with deprivation, or with situations, and (3) design methods for the interaction of motivational factors in the selection of behavior. Fruitful ideas to support the development of such systems can be found in psychological theories of drive, operant models of choice, and studies of human judgment under uncertainty and risk. This author has created simple prototypes of such systems. Ethical and social implications of this line of research should be considered by those knowledgeable about the complex interplay between technology and societal concerns. Sources: Works by Clark Hull, Sigmund Freud, Abraham Maslow, researchers in operant conditioning, Daniel Kahneman, Amos Tversky, the author’s previous work, and computer simulations.

Chair: Langdon Winner
Discussant: Colin Garvey, RPI

082. Gender in Academia II: Making Way in Academia

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Clarendon

STS, in particular feminist technoscience studies, has long been concerned with the co-production of gender with various aspects of technoscience, including the analysis of gender (im)balance in technoscientific institutions. This panel calls for papers that analyse gender (im)balance in universities and other scientific organisations to improve the understanding of gender balance dynamics in different contexts. Such dynamics could be explored within specific disciplines, acknowledging the substantial differences within the STEM field, the life sciences as well as the social sciences and the humanities. What kind of disciplinary and/or local cultures stimulate or impede the improvement of gender balance among professors, post docs and PhD students? How is gender co-produced with class, ethnicity, and age? Observations of large variations with respect to gender balance may be seen to challenge feminist technoscience theories that make general claims about gender in/of science. Does this mean that these theories need to be modified? Another important field of inquiry is the role of gender balance with respect to choice of research topics and approaches. Does an improved gender balance change the culture of doing research? Papers addressing the shaping of inclusion instruments and their effects with respect to gender balance among the various kinds of scientific positions are also welcomed. Why may some instruments be more effective than others? In general, papers that converse with STS and feminist technoscience will be given priority.
Participants: Understanding and Negotiating Difference through Integrative Graduate Training Christina Crespo, University of Georgia

Historically, the professionalization of science through certification processes via university degrees relocated scientific practice to places only accessible to the elite, serving as an effective tactic of exclusion (Lave 2015). By the end of the nineteenth century science had been “repackaged as the product of white, male, Western professionals” (Lave 2015).

Additionally, pedagogical institutions can serve as “powerful filters” by either encouraging or interrupting the “flow of certain types of students—such as women and minorities—into the professional pipeline” (Mody and Kaiser 2008). Foucault conceptualizes pedagogy as a process that occurs in particular places through the preservation of power relations. Using this framing and the lens of feminist objectivity, the process of graduate training can be analyzed by considering the nodes of power, the co-construction of meaning and identity, and how difference is negotiated or silenced. The goal of this project is to examine how institutional structure and pedagogical requirements interact with the concept of working across difference in the process of creating scientific knowledge in an interdisciplinary graduate program. The Integrative Conservation Program (ICON) at the University of Georgia defines itself as “integrative” rather than simply interdisciplinary, a distinction which highlights the intention to produce “agile scientists” who are “capable of moving easily between knowledge domains, brokering information across disciplinary and epistemological divides, and embracing and maximizing the potential of differing perspectives” (Welch-Devine et al. 2014). My main research questions are (1) how is difference understood and negotiated in the context of integrative graduate training and collaboration? (2) How do gender, ethnicity, university position, and age interact both within and across disciplines to produce or reduce inequalities? Understanding the university as a site of ethnographic observation, I will use autoethnography to engage in a reflexive research process that facilitates the systematic analysis of personal experience. Consistent with the lens of feminist objectivity, this methodological approach not only “challenges canonical ways of doing research and representing others” (Ellis, Adamo, and Bohner 2011), but also situates my position as a female scholar and a student in the ICON program within the broader research framework. The proposed presentation will discuss research collected during the spring and summer of 2017 from program meetings, classrooms, and ICON social events. To explore the experience and negotiation of difference, I will also collect data from current and past ICON students, faculty, and staff through a series of interviews, surveys, and focus groups to observe “the co-construction of meaning and the elaboration of identities through interaction” (Wilkinson 1999). Going beyond how disciplinary differences are explicitly identified and negotiated, this research will interrogate how speaking across other forms of difference is enacted to shed light on how gender, ethnicity, and other aspects of identity interact at both the disciplinary and interdisciplinary levels of graduate training. These findings have the potential to contribute to STS scholarship on gender and interdisciplinarity in academia. Additionally, this study will provide insights on the use of autoethnography in STS scholarship as a method for exploring how gender interacts with knowledge making processes.

Should I Stay or Should I Go? How Young Scholars Perceive Their Future in Academia Guro Korsnes Kristensen, Norwegian University of Science and Technology; Siri Øyslebø Sørensen, Norwegian University of Science & Technology (NTNU)

Short abstract: This paper contributes to the STS literature on gender in/of science, exploring how early career scientists reflect upon a possible future within academia, and the ways in which various narratives on doing an academic career are imbued with (gendered) imaginaries of academia and academic life. Long abstract: The leaking pipeline pattern of women in academia seems to be persistent, and the efforts to understand and reverse in the pattern are numerous. In this paper we address this issue by exploring the self-understanding and imagined futures amongst early career scientists. The STS literature on gender in science shows how scientists’ self-understanding is shaped by diverse understandings of research purposes (Pielke 2007), but also influenced by gendered perceptions of the self (Søndergaard 2003). Others have argued that discourses of ambition within academia are inherently gendered, resulting in patterns of gender inequality (Benschop, Brink, Doorwearda og Leenders 2013). Furthermore empirical studies of academic culture have shown that gender stereotypes influence perceptions of competence and merit (i.e. Beuben et al. 2014; Shepardson og Pizzini 1992; Tregenza 2002). In this paper we ask how do early career scientists reflect upon their possibility to do an academic career, what do they see as boosters and blockers when it comes to success in academia, and how are these reflections and experiences imbued with gender? The paper is based on qualitative interviews with early career scientists (PhD- and post-doc-students) at the Norwegian University of Science and Technology. The interviewees are selected from departments with different levels of gender balance and gender balance change patterns.

Questioning the Mobile-Male / Trailing-Female Pattern of Academic Mobility. The Case of Switzerland. Marie Sauatier, University of Lausanne; Nicky Le Feuvre, University of Lausanne

Feminist studies have previously described the gendered character of academic mobility, and its role in maintaining the gender gap at the top of the academic hierarchy. By pointing out the relative sedentarity of female scientists compared to their male counterparts, and its implications on the academic evaluation process, they helped explain the co-production of gender within the academy. Other contributions have noted how the scale of gender inequalities in the academic field varies widely according to the national and institutional environment in which they take place. We explore the geographical mobility of male and female researchers in the specific context of Switzerland, and draw on the qualitative analysis of 65 semi-structured interviews conducted within two European research projects to analyze the trajectories of early career researchers, from various geographical origins, disciplinary backgrounds, age, gender and family arrangements. The variety of transnational mobility patterns among researchers working both in and outside of academia challenge conventional feminist technoscience theories whereby the mobility of a male mover is made possible by the services of a “trailing wife”. Our results show that women are no longer excluded from international mobility programs. This is not enough to ensure increased gender equality at each step of the academic evaluation process. Women’s mobility patterns remain partly distinct from those of the majority of their male counterparts, and they do not imply the same symbolic “price-to-pay” at both professional and personal levels.

Brazilian Technical and Technological Education: Where are the Women? Cintia Tortato, Instituto Federal do Paraná

This research aims to collect data on the places of men and women in courses that work in a public institution of higher school and superior with tradition in the technical, technological and scientific Brazilian areas. At the first moment, a mapping was done on the students’ enrollment documents to investigate the concentrations of men and women by course and area of knowledge. Later, data collection was done in the survey style to gather information about the reasons for the choice and permanence of women and men in their spaces. Then, a qualitative investigation was carried out, through interviews to know the reasons for this distribution, the expectations and difficulties encountered by women, mainly in the technical and scientific areas. These data were confronted with data from other Brazilian realities in order to improve understanding of the constitution of the scientific and working fields with the gender
perspective and consequently enrich the debate about STS and gender. The adopted methodology consisted of bibliographical research related to forming the theoretical body that allowed the discussions about the data collected, research and survey of quantitative data in the academic documents and interviews with students. In this way, an analysis was made, in the light of the literature review about the reasons that permeate the choices, especially of the women regarding the possibilities of professional performance, difficulties of insertion and permanence related to the gender.

Chair: **Knut H Sørensen**, NTNU, Dept. Of Interdisciplinary Studies
Of Culture
Discussant: **Vivian Anette Lagesen**, NTNU

083. 2017 Fleck Prize winner: Judy Wajcman's Pressed for Time
Author Meets Critic
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Commonwealth
Chair: **Ingrid Erickson**, Rutgers, State Univ of New Jersey
Author: **Judy Wajcman**, LSE
Panel Members:
**Melissa Mazmanian**, Cornell University
**Steven Jackson**, University Of California Irvine
**Sheila Jasanoff**, Harvard University

084. Academic Evaluation in an Age of "Post Truth" II:
"Outlooks"
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Dalton

STS has made major contributions in specifying the key concept of “values”. We can no longer take for granted that values are given or that they straightforwardly determine action. We know instead how much is involved in making, articulating, enacting and manipulating values. In academic work, such practices abound: we know that determinations of academic value involve contingent practices of evaluating, rating and ranking performance. What are the implications of this understanding of academic evaluation in the contemporary situation, where standards of truth are allegedly undergoing significant modification? In a situation of "values". We can no longer take for granted that values are given or that they straightforwardly determine action. We know instead how much is involved in making, articulating, enacting and manipulating values. In academic work, such practices abound: we know that determinations of academic value involve contingent practices of evaluating, rating and ranking performance. What are the implications of this understanding of academic evaluation in the contemporary situation, where standards of truth are allegedly undergoing significant modification? In a situation of "post truth" (nominated as OD's new word of 2016) what contributions can our pragmatist orientation to evaluation make, and how? Is it possible or important to retain symmetry, impartiality, and agnosticism with a phenomenon which so close to home? Is this simply to replay the contention that critique has run out of steam or are we witnessing the emergence of practices of evaluation that are inherently external to regimes of truth and thus of critique? Can STS make interventions that can make a difference? This panel invites papers which address the practices and transformations of academic evaluation in the age of post truth. These practices include, but extend considerably beyond, the use of diverse metrics and indicators. For example, the panel invites discussion of peer reviewing, grant proposal assessments, paper grading, appointments and promotions, awards and prizes, book endorsements and other professional practices. We welcome papers which discuss more (or less) appropriate future modes of academic evaluation.

Participants:
**Beyond Managerialism. Academic Rating and Ranking as a Solidarity Saving Device Mikhail Sokolov, European university at Saint Petersburg, Russia**

Various formal rules prescribing usage of quantitative measures in academic evaluations are usually regarded as a projection of the market institutional logic on the academic world, and their spread is customarily interpreted as an expression of the global tide of managerialism jeopardizing solidarity of the academic community. This talk will identify other functions and other possible sources of the attractiveness of quantified performance indicators. It is based on a participatory microhistorical study of two private Russian academic organizations which on their own initiative developed formal research performance measures used for (1) distribution of bonuses and salary increments (2) formulation of qualification and promotion requirements. While some influence of institutionalized environment was obvious in both cases, the most powerful incentives for developing quantitative measures were internal. Quantitative measures (1) served as a face-work technique (Goffman) and were used to suppress potential interpersonal conflicts arising from necessity to discriminate between quality of immediate colleagues’ work (e.g. institution A evaluated performance through aggregated rankings based on survey of fellows) and (2) were used to alleviate suspicion of discrimination of particular departments or individuals on the side of university administration. External institutional influences were mostly cited to justify a particular decision when all decisions seemed equally arbitrary. It is argued that these findings could be generalized to other Russian institutions, with formal rankings particularly proliferating in conditions of increased accountability of administrators before their collectivities and in situations when following traditional academic interpersonal rituals of admiring each other’s work became unsustainable.

Efficiency as Conditional Truth in Research?: Rules of the Road from a Japanese Perspective
**William S Bradley, Ritsumeikan University**

As part of the Japanese Ministry of Education, Culture, Sports, Science and Technology’s (MEXT) response to multiple and highly publicized researcher misuses of funding, plagiarism, and falsified data (symbolized by the Obokata retraction of papers in Nature in 2014), more than 800 universities are have commenced using an online training program, CITI (Collaborative Institutional Training Initiative) Japan Program. The training involves textual components, followed by online quizzes, which faculty and other researchers (graduate students, post-docs, and others) must then pass to comply with university directives in order to receive grants and funding. Knowledge production is thus linked both directly and indirectly to a triple helix model (Etzkowitz, 2008) that ostensibly bonds government policy and universities’ promotion of research and innovation in service of “society” as well as advancing neoliberal STS in Japan (Kihara, 2013). This paper analyzes one of the four key aspects (honesty, accuracy, efficiency, and objectivity) of the definition of responsible research by which MEXT seeks to turn “immature ‘minor’ researchers” into “‘adults’ in the research world,” focusing on the cultivation of efficiency. In the aftermath of the 3.11 Great East Japan Earthquake and the revelations of failures of scientists to promptly inform the public, a focus on ethical conduct entails that the government be more actively engaged with monitoring all of its expenditures for research. Efficiency is described in shorthand as “avoiding waste.” To the extent that efficiency is a key aspect of research that is promoted, how are subsequent findings evaluated and valorized and what effects does this have for truth-making of and through research? Moreover, since CITI makes extensive reference to the U.S. in its models of accountability, how do recent developments of post-truth regimes abroad affect such representations of truth in these training materials? To what degree are the notions, taken for granted, assessed without contextualized and specialized knowledge and background represented as possible areas for learning in such training? Or are such grey areas simply left to the individual to resolve after basic training as that which is provided in these modules? Research in this paper also focuses on interviews with ten key faculty members across a range of institutions in Japan, as the rules for use of funding are increasingly tightened to prevent repeated incidents. How do different institutions interpret the demand for research with increased accountability and responsible communication of results to the “public”? Legitimacy Crises, Politicisation, and Normative STS: Seeking
Sincerity in Public Climate Change Debates Bernhard Isopp, York University

Legitimacy crises of expertise have become palpable. Current crises seem less rooted in passive public disenchantment, and more in the hostility to, and rejection of, the authority of expert knowledge. This hostility comes not only from public feelings of exclusion and disenfranchisement, but from privileged economic and political positions. While these concerns have recently become overt, or at least manifestly disconcerting, these issues have been simmering in the context of climate change for at least the last decade. This paper takes a reflexive constructivist perspective in examining the past ten year’s worth of public climate change debates in the form of commentaries in three major Canadian newspapers. Framing and critical discourse analyses were conducted which examined how the authority of scientific knowledge and notions of scientific truth were constituted in these debates. These debates can be understood as much as contestations of specific knowledge claims about climate change as articulating broader visions of science. One of the key themes that emerges in these discourses is the distinction between “sound” and “politicised” science. Moreover, voices in these debates appropriate many key concerns of STS, even at times explicitly referencing STS theories. This prompts challenging reflections on the nature and role of STS. Much STS work has undermined the view of politicised science as a distortion of scientific truth, calling attention to the ways in which science is always political. And yet, issues like climate change – especially with regards to organised scepticism campaigns – make it difficult to completely displace normative concerns about politicisation. However, since competing voices in these climate change debates all seek to mobilise the authority of science to bolster their positions, reverting to notions of “unpoliticised” science does not point to a way out of these dilemmas. The key question I engage with is how room can be made for legitimate public debate on scientific issues like climate change that does not merely reinforce precisely the kind of mis-appropriate notions of scientific authority that STS has challenged. There have already been many promising efforts in STS to offer conceptions of science that are both normative, capable of identifying better and worse scientific knowledge claims, and constructivist, recognising the contingent and contextual social and political nature of scientific knowledge. Here I try to add to these efforts by proposing a normative view of public scientific debates that is predicated not on unpoliticised science, but on genuineness and sincerity.

Mishaps and Mistakes in Academic Evaluation Claes-Fredrik Helgesson, Linköping University, Technology and Social Change; Stephen Woolgar, Univ. Oxford

Academia is saturated in practices of evaluation. Manuscripts are peer reviewed, candidates for tenure or positions are scrutinised and ranked, and the social impact of research is increasingly assessed in myriad ways. These practices incessantly enact, order and displace the values of academic work. Some academic evaluation practices seem less consequential than others: for example, the excerpting of reviews and blurbing on the back of books. This paper argues that even apparently marginal evaluation practices nonetheless contribute to performing and sustaining the relations of accountability which order academic practice. This paper proposes that is especially instructive to ask what happens when evaluative practices go wrong. Beginning with an analogy with certain recent high profile “mistaken” evaluations (for example, Miss Universe 2015, the Oscars 2017) this paper shows how a close study of “mistakes” in academic assessment – both in the process of their disclosure and subsequent management – provides important insights. The paper examines a closely a small set of such instances, including the incident in November 2016 when Thomson Reuters sent out a large set of emails to scholars indicating them as being awarded the distinction of being a “Highly Cited Researcher” in their field only to a few hours later retract these awards. Studying such instances provide insights into the matters at stake, the choreography of performing and revealing evaluations, the ways in which different evaluation practices fold together, and the accountability structures which support academic evaluation.

Chair: Mario Biagioli, UC Davis STS Program & Law School

085. Can Improved Science and Technology Mean Progress? II: Re-visioning

Traditional (Closed) Panel 11:00 to 12:30 pm Sheraton Boston: Floor 3 - Exeter

Must technoscientific “progress” proceed so technocratically? Dominant innovation discourses implicitly support the view that scientific knowledge and technological innovation automatically translate into improved living. Such a view has led to the promotion of “permissionless innovation,” an ideology that legitimates a hands-off approach to the “disruptive technologies” designed by Silicon Valley entrepreneurs and freedom of research in their R&D departments. However, scholars have shown that sociotechnical innovations typically benefit some people and organizations more than others. Thus it is clear to many within STS that those wishing to enact non-technocratic visions of progress face social as well as technical barriers. To mitigate or head off the worst consequences of permissionless innovation and other discourses that naturalize the politics of technoscientific change, scholars must consider alternative ways of steering technoscientific agendas, aside from allowing small groups of politically and financially powerful elites to make most of the decisions. How might new technologies and research programs be shaped to be more suitable for public purposes before markets let them loose into the world? The purpose of this panel is to explicitly examine what would be required to guide science and technology toward better fulfilling more humans’ needs more of the time. Possible topics include, but are not limited to, mechanisms for slowing the pace of technoscientific change, addressing the privileged position of particular decision-makers, counteracting the subtle effects of “permissionless innovation” and other naturalizing discourses, and better enabling citizens and experts to critically probe the politics of innovation.

Participants:

Progress through Sociotechnical Dismantling? Conceptualizing Luddism for the 21st Century Taylor Dotson, New Mexico Tech

Explicitly dismantling or decommissioning existing sociotechnical systems seems to be unimaginable both within dominant public imaginaries and in academic thought. Indeed, “gee whiz” journalistic narratives regarding emerging technoscience abound as many, especially more affluent, members of the public appear to eagerly await any new innovation coming out of Silicon Valley. At the same time, the vast majority of science and technology studies (STS) research focuses on the creation of new technoscience, not its destruction or temporary decommissioning. Yet lay citizens clearly engage in forms of Luddism: schoolchildren and overworked professionals take digital “detoxes,” a number of cities have dismantled their urban highways, and a growing movement of parents have opted their children out of their state’s standardized testing requirements. While all such efforts are rooted in the rejection of a particular technology, they vary in terms of their resemblance to the Luddite activities of 18th century English textile workers as well as with respect to Langdon Winner’s concept of epistemological Luddism. How might STS scholars best make sense of and aid the practice of 21st century Luddism? This presentation conceptualizes a number of contemporary examples of technological dismantling with regard to their epistemological and political characteristics, exploring how Luddite activities might fit into alternative notions of progress, and ends with a discussion of the limitations of and the likely barriers to a broader practice of decommissioning technoscience.

Supporting Urban Innovation: A Critical Assessment of Two Models Matthew Claudel, Massachusetts Institute of Technology

Cites play a central role in the contemporary globalized condition: they exacerbate its challenges, from climate change to
Economics to pandemic, but they also bring tremendous opportunity for urban innovation. Civic products capture value by addressing inefficiencies in existing systems or providing new services, platforms and experiences. Metropolitan solutions are inherently beneficial, but there is also value generated by the process of designing, implementing and sustaining those solutions. The procedural value is a central criterion for delimiting urban innovation as distinct from other forms of novelty. Drawing on theory and practice, three tenets are fundamental to urban innovation: experimentation in public space; participation with citizens; integration with the local ecosystem, across sectors and between organizations. In recent years, two dominant models have emerged for supporting urban innovation – Living Labs and Urban Innovation Integrator Units (UIU). Both avow experimentation, participation and integration, yet they are radically different in practice. This paper critically assesses which model most successfully achieves the goals of urban innovation – process and product – as evaluated against their common principles. A panel of case cities is deliberately structured to achieve maximum variation in city size, political status, economic position, and, most importantly, presence of LL and UIU. Purspective selection and nested case study design effectively isolates variables (e.g. controlling for the effect of a city’s individual characteristics on outcomes). Data from a hybrid research method – semi-structured interviews, observation and data collection – informs a qualitative comparative analysis for logical evaluation of the relationship between conditions and outcomes. Together, the case selection design and mixed-method analysis constitute a novel strategy for research on urban innovation systems, and provide a strong means to theoretically and practically assess the LL and UIU as models for supporting urban innovation.

Can Improved Science and Technology Studies Mean More Intelligent Progress? Aftab Mirzaei, York University Where and how should STS scholars look to uncover new ways of engaging with and understanding the practices and processes of (technocratic?) innovation? In this paper, I will articulate the necessity of not only confronting, but also reflecting on and developing deeper understandings of the particular processes at play in the techno-entrepreneurial landscape, through ethnographic methods. Specifically, I will highlight the importance of probing the widely deployed tools and methodologies of project management and surveying user experience, Agile and Journey Mapping respectively. I propose that direct observation and de-scription of these tools, and their use in the said key processes of design and development, will reveal the performativity of techno-entrepreneurial mythologies and methodologies at work in this landscape. Such an outlook will in turn bring to light a more nuanced account of various actors, nodes, decision points, movements of ideas, and negotiations at play in the imagination and development of new technologies and its users. Foregrounding these facets of technological development will complicate STS scholars’ understanding of the dynamics at work in the realm of innovation, and allow the relationship between the scholars and innovators to mature, hence affording more pertinent contributions and interventions to materialize between the two. Thus, this is call for STS scholars to re-situate themselves with respect to techno-entrepreneurship, in order to find more ways of engaging with, and steering its progress.

Chair: Taylor Dotson, New Mexico Tech
Discussant: Michael Bouche

086. Emerging Technologies and Conservation II

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Fairfax A

If the broad (and sensible) approach to conservation is the protection and ethical use of natural resources (with an emphasis on the ‘natural’), one could argue that emerging technologies — especially but not limited to the tools of genetic engineering — have rendered some conservation efforts ‘insensible.’ In our understanding of meaning-making behind how conservation efforts might unfold, emerging technologies’ role in conservation may spark calls for reimagined landscapes that integrate multiple knowledge bases (e.g., historical ecology and responsible innovation), require hybridized and problematized notions of the ‘natural,’ and disrupt assumptions about traditional partnerships and positions. Importantly, such an amalgam of ethical and technical considerations also calls for emerging analytical and governance frameworks to explore the dynamic socio-technical landscapes and relationships. This session invites papers that address the complex intersections between emerging technologies and conservation. With an emphasis on at-times surprising dynamics between the tools and techniques that emerging technologies are making possible in conservation efforts, papers may address one of the following questions: What new tools or new applications might bridge traditionally oppositional actors, and what new meanings must be constructed? What combinations of knowledge bases are being called for as emerging technologies impact traditional conservation efforts? What surprising partnerships and positions are emerging as a result of the application of emerging technologies in conservation? What assumptions are being disrupted about what is deemed natural? What surprises might emerge as emerging technologies are brought into the spheres of conservation?

Participants:

Envisioning Responsible Innovation in Biotechnology for Conservation: Engagement, GM Chestnut Trees, and Gene Drive Mice Jason A. Delborne, North Carolina State University

Calls for responsive and responsible innovation often include explicit attention to the need for public engagement. Public engagement increasingly receives the blessing, and even enthusiasm, of technoscientists who, in the wake of public opposition to historical GMOs and regulatory uncertainty regarding emerging biotechnologies, fear opposition to their work. (Marris, 2014). How can STS scholars design and implement engagement activities in these environments that contribute to responsibility in science and innovation? This paper draws on early work in two examples of public engagement around emerging biotechnologies with conservation goals: 1) the GM American chestnut tree, designed to restore the “functionally extinct” species to forests of the eastern U.S.; and 2) a gene drive mouse, designed to eradicate invasive species of mice on islands where they threaten biodiversity. Approaches to engagement are informed by scholarship and practice, including experience with the Expert and Citizen Assessment of Science and Technology (ECAST) Network. Key questions involve the construction of publics, engagement with communities of significant cultural diversity (including scientists and other tribal communities), and the incorporation of engagement “outputs” into decisions about the design, governance, and field testing of these emerging biotechnologies.

Gene Drives over the Horizon: A Model, for Anticipatory Governance Gregory Alan Backus, North Carolina State University; Jason A. Delborne, North Carolina State University

Recent advances in gene drive technology raise questions for anticipatory governance. Specifically, what does it mean to pursue research that might result in widespread and irreversible impacts, even under the phased approach recommended by the National Academies of Sciences, Engineering, and Medicine (2016) report, Gene Drives on the Horizon? In particular, this paper focuses on a new method of invasive species population control that would involve genetically engineering mice to have mostly male offspring. By repeatedly releasing these genetically engineered mice, a mouse population could be completely suppressed after a few generations without using harmful chemical toxicants. At this early stage of theoretical development, however, the ecological risks of these gene drives are difficult to consider; there are limited data with a high degree of uncertainty. This paper offers a partial solution, showing how...
insight from mathematical models can tangibly contribute to anticipatory governance throughout the multiple stages of innovation. Early in development, simple models are an ecologically safe and highly replicable way of identifying and analyzing the range of potential outcomes, even when many parameters cannot be reliably estimated. Modeling the population dynamics of the gene drive engages key questions without the potential consequences of escape. Modeling can also highlight critical gaps in knowledge, so experimental research would only need to be used when it is most necessary. This paper discusses specific insights gained from mathematical models of a gene drive system for eradication, showing how such insights can inform the design, governance, and deployment of any eventual innovation.

Re-ENLISTing Actors and Actants: Market Devices for the 2,4-D Herbicide Victor Pelayo, UFPR - Federal University of Paraná; Leticia Rodrigues da Silva, Federal University of Parana

Initially conceived for military purposes, the 2,4-D herbicide was first sold as a pesticide in the 1940s. Its toxicity potential has been the object of use restrictions in some countries and controversies among NGOs, regulatory agencies and manufacturing companies. In 2014 the herbicide Enlist Duo, composed of two active ingredients (2,4-D and glyphosate), developed by Dow Chemical, was approved in the USA by the Environmental Protection Agency. Enlist Duo’s adoption is related to the development of glyphosate and 2,4-D tolerant GM crops, which were also approved in 2014 by the US Department of Agriculture. These approvals enable the continuity of a technological model that provokes a sort of ecological disequilibrium, which is recognized by the very regulatory agencies. This disequilibrium is due to the spread of glyphosate resistant weeds, through the intensification of this active ingredient use, which is associated with the increase of genetically modified (GM) crops, which are tolerant to glyphosate. Notwithstanding, the main arguments for approval and marketing strategies, related to the Enlist Duo, are based on a conservationist framework where the main arguments are: soil preservation, reduction of fuel consumption, and of pesticide use. The aim of this communication is to analyze the arguments adopted by Dow, the US regulatory agencies, and the NGOs, in Enlist Duo’s regulatory process and the GM crops thereof. The respective arguments are viewed as a controversial process of translation of interests and of market devices creation, acting as a bridge between old (chemical pesticides) and new technologies (GMOs).

Biobanks as Mediating Infrastructures for Conservation? Antoine Dore, INRA

One third of domestic breeds are considered to be at risk of extinction, as reported by the FAO. The Global Plan of Action for Animal Genetic Resources identified conservation as a “Strategic Priority Area” to be addressed. In order to preserve the genetic diversity of livestock in complementarity to in-vivo conservation, ex-situ conservation (through biological material) has been developed. Farm animal Biological Resources Centers (BRC) became important sources of genetic variation to ensure breeds’ long term survival. At the crossroads of Infrastructure Studies (Bowker, Star) and “empirical ontology” (Mol, Law) this paper examines the effects of these infrastructures on the socio-technical landscapes of animal genetic resources conservation. First, it seeks to illustrate biobanking practices and the bodies made through them. I show how biobanking infrastructures contribute to a molecularization of animals and a genetic (re)translation of conservation issues. Second, based on the analysis of technical documents of the farm animal BRCs and in-depth interviews with some European actors of animal genetic resources conservation, this paper examine contending narratives about the need of a renewed strategy for animal biobanks coordination in order to taking advantage of biotechnological innovations originating from genomics. I show how these narratives about conservation strategies enact heterogeneous associations between animals of the present and animals of the future through these molecularized animals that are stored in biobanks and that are constantly redefined by biotechnological innovations. The paper concludes by discussing how biobanking infrastructures and associated biotechnological innovations transform the different sensible approaches to the future of biological resources.

Chair: Jessica Cavin Barnes, North Carolina State University
Discussant: Kathleen Burnhill, North Carolina State University

087. Entangled Sciences of Gender, Sexuality, Race: Latin American Issues

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Fairfax B

The miscegenation policies that the Spanish and Portuguese introduced into the Americas in the Sixteenth Century established more hierarchical and rigid categories of gender, sexuality, and race than had existed earlier. These new, pre-Darwinian, sciences of race, sexuality and gender were complexly entangled with each other from the beginning. Some Latin American scholars, such as philosopher María Lugones, have argued that they still have powerful effects today, while others, such as social scientists Silvia Cuencaqui, Mara Viveros, and Marlise Matos have argued for a more complex understanding of the intersectionality that the categories of gender, sexuality, race and ethnicity have in the region. This panel invites papers that ask: In what ways has this colonial scientific legacy persisted? In what ways has it been revised? How do Latin American feminists, both in Latin America and in the North, discuss this issue? How has it shaped (or not) STS methodological projects in Latin America? What role have such discussions played in democratizing projects? How has it influenced conceptions of gender as an analytic category, as well as theories of ethnicity, race, and cultural diversity in Latin America?

Participants:
The Warm and the Cold: Decolonizing Medical Space in Plurinational Bolivia Gabriela Morales

This talk examines state-led efforts to indigenize rural biomedical spaces in Bolivia, and how these articulate shifting notions of race, gender, and care. The practices and spaces of rural biomedicine have been historically central to state projects of racial mestizaje. Yet following the election of Evo Morales as President of Bolivia in 2005, government officials began grappling with questions of how to “decolonize” and “de-patriarchalize” healthcare — that is, how to reverse conditions of oppression and support indigenous ways of knowing and healing. Drawing from indigenous activist proposals — as well as anthropological and philosophical writings — state officials envisioned a healthcare system in which patient well-being would be central; yet, as my research argues, these interventions also entrenched historical notions of indigenous and gendered difference. I show how this complex political project — oscillating between colonial categories and their undoing — has been enacted through one initiative to “culturally adapt” rural obstetric practices. I explore how, in conjunction with NGO workers, state officials mobilized indigenous ontological notions of “warm” and “cold” in order to reimagine spaces, technologies, and relations in the clinic. In tracing these affective transformations, I argue that medicine has become a crucial site for enacting debates surrounding cultural and bodily difference in Bolivia.

Doubly Disadvantaged: The Recruitment of Diverse Subjects for Clinical Trials in Latin America Manuela Fernandez Pinto, Universidad de los Andes

As emphasized by women’s health advocates, the inclusion of research subjects who have been traditionally excluded from medical research is the first major step to acquire more specific knowledge about diseases that affect that particular group of patients, as well as to develop better treatments. In addition to this epistemic gain, an appropriate diversification of research
subjects aims to address issues of sexism, racism, and previous history of exploitation as abuse of research subjects. However, two important challenges arise. First, the recruitment of women and minorities for clinical research can be challenging, especially among groups with histories of clinical abuse and patient exploitation. Second, patients in high-income countries, where most revenues for pharmaceutical companies are located, tend to consume more medicines and thus become less ideal as subjects for clinical trials. Due to its allegedly diverse population and strong doctor-patient relations, Latin America has become one of the most attractive locations for international clinical trials. In the paper, I examine the case of recruitment of women and minority patients to serve as subjects of international clinical trials, through CBOs operating in Latin America. After analyzing the epistemic and ethical shortcomings of such endeavor, I argue that Latin American patients participating in such trials are located in a position of double-disadvantage. First, they suffer the consequences of a lack of appropriate understanding of symptoms and reaction to treatment in women and other underrepresented groups, which has led in turn to unnecessary suffering and death. Second, they suffer the direct consequences of being subjects in clinical trials which are not design to meet their needs, but the needs of patients in the Global North. Accordingly, I conclude by highlighting the importance of acknowledging this double disadvantage and formulating a critique to the neoliberal model of research organization.

One World or Many? Gender, Sexuality and Race Issues
Sandra Harding, University Of California Los Angeles (UCLA)

An ‘ontological turn’ has emerged from many sources around the globe. Originating in the work of anthropologists such as Eduardo Viveiros de Castro, it has appeared also in international relations and in the work of science and technology studies scholars such as Helen Verran, John Law, and Bruno Latour. Historians and philosophers such as Peter Galison and David Stump have come close to advocating it. In Latin American decolonial theory it is often framed as crucial for producing knowledge ‘Otherwise.’ A central argument in this work is that even the most radical epistemological transformations are inadequate to defeat the familiar but distorting modern insistence on the existence of exactly one world ‘out there.’ Of course this is ‘the real’ that the modern West has made the object of its civilizational efforts in every area: economic, political, social, scientific and technical. And it is part of the metaphysics that analytic philosophy of science firmly positioned as beyond its permisssible analytic horizons. Philosophy and modern sciences themselves have seemed to lack the resources to take responsibility for their mythologizing of nature and scientific progress. This presentation will analyze ways that concepts of gender, sexuality and race have been ontologically repositioned in the work of several Latin American authors. It will ask what it can mean to take responsibility for such intentionally ‘mythic’ transformations within standpoint, collaborative, ‘Borderlands,’ and related ‘rear guard,’ research practices.

HPV vaccine in Carmen de Bolívar (Colombia): crisis, rumors and nonsense
Zandra Pedraza, Universidad de los Andes

HPV4 vaccination (with Gardasil) took place in Carmen de Bolívar during 2013 and 2014 as part of the national vaccination campaign displayed all over Colombia to prevent uterus and cervical cancer. Although medical authorities recommend vaccination for boys and girls, and both men and women transmit and develop cancer caused by human papillomavirus, this campaign has exclusively focused on girls. In June 2014, an outburst of reactions occurred in Carmen de Bolívar and in a timespan of eight weeks, some hundreds of girls landed in the local hospital with symptoms including severe headaches, weakness, fainting, convulsions, paralysis, and other uncommon and inexplicable conditions. Hysteria, witchery, and a massive psychogenic reaction were some of the interpretations given by medical authorities have denied the suffering of hundreds of girls and their families, and the medical character of their symptoms. It also examines the effect that the official lack of sensibility toward the experience of the girls had on the struggle for recognition and meaning that has taken place between medical national authorities and families in Carmen de Bolivar. The authorities proposed an alternative but, also, “scientific” answer: the girls were enacting a massive psychogenic reaction. This response has turned medical reactions into psychological reactions, avoiding damages to the national vaccination campaign, while ignoring the patient’s experience and rejecting medical evidence.

Chairs:
Tania Pérez-Bustos, National University of Colombia
Sandra Harding, University Of California Los Angeles (UCLA)
Manuela Fernandez Pinto, Universidad de los Andes

Discussant:
Raoni Rajão, Federal University of Minas Gerais (UFMG)

088. Whiteness and Technoscience II
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Gardner A

These two panels bring together a collection of papers to address the paradigm of whiteness in technoscience. As a paradigm, whiteness contributes to the insensibility of struggle, violence, trauma that now regularly take place on and within digital platforms, social media, and information technologies. The anonymity of many of these technologies has amplified hate speech and reinvigorated a toxic white masculinity. In the current political climate, we have witnessed how technoscience has amplified rhetorics of hate in the name of free speech, contrary to the utopian visions of early internet punditry. Concomitant with these struggles, violent acts, and traumas, is the conjuring of insensibility through the spectacles of fake news, alternative facts, and anti-intellectualism. Our approach to whiteness, in this panel, extends conversations within feminist STS scholars who have studied the production of race and racial discourse within technological and scientific endeavors. Moreover, this panel contributes to these conversations by opening the “black box” of whiteness as a paradigm and invisible infrastructure within technoscience more generally. In doing so, we ask several questions: How does whiteness travel across and through technoscience? How does technoscience reproduce and perpetuate whiteness as racial, economic, and epistemological standard? What investments in whiteness does technoscience produce?

Participants:
Sexy Data
Patrick Keilty, University of Toronto

This paper examines how software developers and data scientists in the lucrative online pornography industry design web analytic software and sophisticated algorithms to identify individuals’ desires through large surveillance networks that contribute to the graphical organization of pornographic content, with particular attention paid to the way these systems infer categories of sexual desire upon people based largely on web-surfing habits. The online pornography industry uses these algorithmic identities to mediate and fetishize categories of cultural difference, such as race, gender, sexuality, class, and geographic origin. As viewers input more and more surfing habits and metadata into the database, content and advertisements are then suggested to viewers according to their perceived identities. Importantly, each viewer’s identity is always changeable, based on newly observed behavior or the input of new metadata. The purpose of this adaptability is to create a capacity of suggestion, to softly persuade viewers to continue searching for an imagined perfect image, and to enable repetitive and recursive browsing, encouraging viewers to forgo the pleasures of the known for the pleasures of the unknown. Examining the design of these systems helps us better understand the workings of biopower at the level of the category, computer code, statistics, and surveillance as a form of interpelation. In this way, the design of online pornography websites works as a disciplinary regime that
“Surrogate Humanity and the Problem of Whiteness in a “Post-Labor Era” Neda Atanasoski, University of California Santa Cruz; Kalindi Vora, University of California San Diego

The growing prevalence of industrial robots replacing human workers seems to announce that an ostensibly post-human (and therefore, “post-race” and “post-gender”) epoch is upon us. Since the first industrial revolution, automation has signaled the threat of the replaceability of raced and gendered types of human functions and human workers. Following the 2016 US presidential election, for instance, the media announced that Donald Trump could not live up to his promises to return jobs to the white working class because these jobs were lost to robots rather than threatening racial others (illegal immigrants and racialized outsourced labor in the Global South). The machine and the racialized other pose a similar threat of displacing those already fully human in this conception of (white) loss. In this paper, we track technical imaginaries both utopic and paranoid in which specific technologies are both actively designed, but also often feared, to act as surrogate humans. We focus on Trump era nationalist discussions around job loss and implicit assumptions around the white working class and position these in relation to arguments by corporate icons (Gates, Cuban, Musk, and others) that the robot revolution/takeover fundamentally shifts the premise of present day discussions of employment. Through a focus on how work is racialized in examples of robotic and digital technologies intended to replace human bodies and functions with technology, the paper considers how we can redefine “the social” and “the racial” in ways that these technologies demand because they exist in relation to the post-Enlightenment figure of the human.

Multidimensional Sensing: Expanding Bio-surveillance across Object-Human-Animal Borders Felicity Amaya Schaeffer, University of California Santa Cruz

After the March 2014 Nuclear Security Summit in the Hague, President Obama noted that his biggest security concern was not Russia, but a nuclear weapon hitting U.S. soil. Given nuclear weapons are predicted to arrive via shipping containers rather than by bombs, Congress passed a 2007 law requiring 100% of overseas cargo containers to be inspected before they embark for the United States. This paper explores the ensuing race for multi-dimensional sensing technology collaborations between the DHS and the Los Alamos lab to extract bio-signatures of nuclear weapons in shipping containers and to predict airborne disease outbreaks. X-ray technologies and DHS’s animal companions (dogs, pigs, and bees) penetrate heavy cargo matter to detect abnormal objects and smells (disease, nuclear, and human). Under the guise of nuclear safety, and the protection of white territory, airspace, and citizens, the DHS deploys bio-surveillance of “foreign” or racialized odors and suspect mass. While the consequences of securing the border from nuclear bombs, disease, dangerous contraband, and bodies are some of the outcomes, I also attend to the consequences of using animal sensing toward the multidimensional surveillance across airspace, oceans, and land. These technologies expand the U.S.’s global surveillance, sovereignty, and profit of more territories, including land beneath the earth’s surface (in the building of pipelines and to monitor nuclear waste leaks), the oceans where cargo ships traverse, and higher into space.

Chair: Kalindi Vora, University of California San Diego
Discussant: Jennifer Hamilton, Hampshire College

089. Dynamics of Knowledge: Bioeconomy and Health II
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Gardner B

Social Studies of Science have been focused on the study of new relationships between health and new technologies. Advances have complicated the perception of the subject, multiplying the uncertainties: during the last century, changes in the epidemiological profile contributed to the emergence of new diseases and new perceptions on environmental and behavioral risks. In some areas of the sciences, sociological research played an important role in analyzing the implications of the use of scientific knowledge in contemporary society. The field of ‘life Sciences’, for example, has a curious ‘fluidity’ in its disciplinary boundaries, especially over the last thirty years. Its intellectual analysis and its technological content have changed rapidly since the 1980s. The “bios” has evolved towards the production of different technologies of intervention in the biological and intellectual life of human beings. At the end of the twentieth century, production of biological knowledge was changing radically, reproducing new bases and research methods different from the pre-1980 stage. In this sense, the increase in the interactions between biological research and its implications for social life, and biotechnology, emerge as the theme for sociological analysis. This is evident in the amount of work produced in the field since the 1980s. Some fields of science are quite controversial, and at the same time point to a field of research with a robust market and present issues related to ethics and governance. From this perspective, we propose to discuss the relationship between bioeconomy and health, to allow a deeper understanding of some new technologies and of society.

Participants:
Producing a Blood-Screening Test in Brazil: Blood Safety Economy and Technological Nationalization Koichi Kameda; Marilena Corrêa, Institute of Social Medicine, State University of Rio de Janeiro; Maurice Cassier, CNRS/France

Introduction: Blood screening tests are important public health tools, as they are used to enhance blood security by identifying blood-borne diseases in the blood services. Nucleic acid test (NAT) contributes to enhancing blood safety by rapidly identifying the genetic material of the infectious agent and represent a complementary tool to serological tests. Even though the WHO does not widely recommend its adoption, due to high costs and required investment infrastructure, it has been implemented world-wide since the end of 1990s, particularly in high-income countries. Rationale: Indeed, the global market of these medical tools, dominated by a few multinationals, is growing trend towards emergent economies. The analysis of the global NAT market leads to a reflection on the differentiation in the access to safe blood products, which becomes related to the country’s capacity to incorporate high cost technologies to screen donated blood. In 2005, a Brazilian public policy implemented by the Ministry of Health, pushed a technological consortium composed by public biotechnological laboratories and a university was established to develop the ‘Brazilian NAT’. The test’s development and production involved a hybrid process of negotiating technology transfer with international multinational companies and locally developing other components of the kit. The Brazilian NAT was registered in 2010 and incorporated in the network of Brazil universal public health system (SUS) related to blood banks, which account for more than 90% of the blood used in the country. Method: Our paper is based on interviews conducted between 2014 and 2016 with participants of the NAT consortium and Brazilian Ministry of Health representatives. It also benefited from ethnography and voluntary internships conducted within the two Brazilian laboratories implicated in the initiative. Discussion: We analyze this hybrid process of technological development and discuss the technological and political limits to an initiative intended to nationalize a blood screening molecular test. We discuss the integration and specificities of this consortium in comparison with the national policy led by the Ministry of Health from 2008 set up to stimulate the local production of technologies used in the universal public health system. However, as we shall discuss, this nationalization policy is limited by the power asymmetries of the global health products market, and faces contestation from local actors on the country’s capacities and the State’s role in the development of high technologies. We finally discuss the impact
of this initiative in terms of pharmaceutical autonomy. Such a hypothesis seems to be reinforced by the development of new tests by the same actors and using the technological capacities acquired during the NATO consortium.

Post-Pharmaceutical Health and the Global Bioeconomies of Regenerative Medicine: Towards a Politics of Surplus Vitality? Christian Haddad

The present paper traces the emergence of post-pharmaceutical health articulated and enacted in the global bioeconomies of regenerative stem cell medicine. STS and allied fields have meticulously scrutinized the changing notions of health in relation to new technologies and the shifting (bio-)economies of knowledge, labor and value in the course of the past decades. One salient aspect of how to critically understand “health” is to study processes of pharmaceuticalization: throughout the 20thc, health has increasingly become an object of pharmaceutical production, discourse and intervention (Abraham 2010, Biehl 2007, Dunlop 2012). More recently, the emergence and growth of “new biologies” and the advanced life sciences have reshaped conceptions of health, often complementing, altering, re-articulating or challenging also pharmaceutical imaginations, discourses and practices. This has been particularly salient in the emergent bioeconomies of cells and tissues, and their underlying epistemologies of the body, of health and disease (Lettow 2012, Nowotny/Testa 2011, Sunde Rajan/Lecioni 2012, Waldby/Mitchell 2008) that have challenged pharmaceutical notions of health, value and subjectivity in substantial ways. Drawing on my completed PhD project, I focus on regenerative medicine as a field where “health” is being reconstituted in relation to new biomedical, legal and socio-economic relationships. More precisely, I argue that what is taking shape is post-pharmaceutical health that problematizes and seeks to overcome the limitations of conventional drug therapies and their entrenched political economies of research and innovation. The paper explores how post-pharmaceutical health corresponds with a notion of “surplus vitality” as source and resource of biomedical, economic, and ethical investments.

Profit and Public Good in HPV Vaccine Innovation at the National Cancer Institute Natalie Aviles, University of California, San Diego

This paper explores the role scientists at the National Cancer Institute (NCI), a US federal science agency, played in researching and testing vaccines for the human papillomavirus (HPV). Drawing upon archival sources and oral history interview data, I challenge accepted narratives that attribute the design of HPV vaccines to profit motive in the private sphere, instead showing that pharmaceutical companies developed these vaccines using early protocols and enabling technologies designed by government researchers. I argue that interpretations of “translational research” native to the NCI influenced these researchers’ efforts to design HPV vaccines as a “public good.” This included targeting generics and second-generation vaccine innovations that met the economic and infrastructural challenges of populations in developing nations and involved collaborations with biotechnology and pharmaceutical companies in India. NCI researchers’ understandings of HPV vaccines as a public good form part of a broader organizational culture that positions the NCI as a countervailing and supplementary force in the field of translational research and development (R&D). NCI researchers’ conceptions of the Institute’s role allowed them to develop an understanding of ethical HPV vaccine research that reflects their situatedness in the political economy of R&D through the lens of this organizational culture.

The Actionability of Exome Sequencing Testing Results Stefan Timmermans; Tanya Stivers, UCLA

Genomic tests such as exome sequencing have recently become an option for diagnosing patients. The tests allow clinical geneticists to sequence the majority of patients’ disease causing genetic variants. As a new technology, exome sequencing confronts the question of what the benefit is of this increased genetic information. Against a narrow perspective of clinical utility that emphasizes tangible improvements in a patient’s disease management, professional organizations have argued that genomic sequencing could be considered beneficial if it helps families and society. Based on video-recorded observations of the return of exome sequencing results to parents of a child with disabilities in the clinic and in-depth interviews with these parents, we examine how genomic test results become actionable in the clinical encounter. We find that parents and clinicians marshal exome results beyond biomedical diagnostic and management goals to address questions about guilt for causing the disabilities and to secure access to disability-related services. We argue that genomic actionability rests on the interaction between the biological characteristics of genetic results and the predicaments facing parents of children with disabilities.
working programs, operational computer systems, and key tools from this recent half of this history are generally available for this video-ethnographic work.

Xerox Alto Software Restoration at The Computer History Museum

Hansen Hsu, Center for Software History, Computer History Museum

At the Computer History Museum’s Center for Software History, we are restoring a vintage Xerox Alto workstation, on which the first modern graphical user interface was created. With our existing archive of Alto software, we are in a unique position to recreate the experience of using this historical machine, and capture it using video. Nevertheless, restorations of this kind are not simple. This talk will explain the process we went through in recreating the Alto and its original software, and its difficulties. One example of such difficulties lies in the fact that software is not a singular artifact, but a heterogeneous network of relations and dependencies, on hardware, other software, and on the social relations embedded in their design. Software dependencies make explicit the materialization of social relations. A recent donation of Alto software illustrates this. Avie Tevanian, former VP of Software at Apple, recently donated the source code to a game he wrote in graduate school, Defender for the Alto. In collaboration with the Living Computer Museum, we attempted to compile the source code to reconstruct a working program, but were stymied because certain required libraries were not available, and could not be tracked down. This experience illustrates the need for software preservation efforts to not just preserve source code, but also the development and build environments they were created in. Such environments may be considered infrastructure, but constantly changing. These difficulties illustrate how both the obduracy and the fluidity of software complicate preservation efforts.

Wikidata as a Semantic Framework for Digital Preservation

Technical Registry Data
Kat Thornton; Euan Cochrane, Yale University

Members of the digital preservation community make use of metadata to describe file formats, software, operating systems and hardware. In this work we describe how the infrastructure of Wikidata meets the requirements for a technical registry of metadata related to computer software and computing environments. Collaboratively creating this metadata, and making it available as linked open data, will reduce the amount of redundant work digital preservation professionals do in order to describe resources. Having machine-readable, linked open data that describes the digital preservation domain will also allow us to reuse this data in our software applications and information systems, reducing the overhead when building new tools.

Wikidata is a project of the Wikimedia Foundation (WMF), and is created through commons-based peer production (Benkler 2002). Simply put, Wikidata is a knowledge base of structured data. The infrastructure of Wikidata is created using free software, and is designated to the public domain. All content in Wikidata is licensed so that others may freely reuse the data. We build on the work of Susan Leigh Star and collaborators to explore dimensions of infrastructure present in the Wikidata system (Star and Ruhleder 1994, Star 1999). Through this analysis we demonstrate how the infrastructure of Wikidata provides distinct advantages to the cultural heritage domain that proprietary knowledge bases do not provide.

Varied Sensibilities in Software Preservation: Demonstrating a Comparative Approach

James A Hodges, Rutgers University

Working within the conference theme of “STS (In)Sensibilities”, this paper outlines the specific affordances of varied forms of software preservation, arguing that different preservation practices make different material dimensions of historical technologies knowable. How do techniques like disk imaging and emulation make the material construction of technological phenomena sensible differently than hardware preservation or original software editions? This paper uses the 1986 Electronic Arts self-help program Timothy Leary’s Mind Mirror as a case study in comparison between forms of knowledge sensible using emulated and original software copies. Treating historical knowledge as socially constructed throughout the preservation and research processes, I will take a bibliographic approach to surveying extant archival copies of Mind Mirror, producing a taxonomy of their relative affordances. The study locates Mind Mirror through each phase of its path from developer manuscripts to institutional, independent, and personal preservation settings, identifying the physical traits of each preserved artifact and linking them with related program behaviors. Phenomena sensible when using original hardware and software copies, such as the Commodore 64 edition’s mechanical copy-protection technique, are nearly undetectable using disk imaging and emulation. Disk-imaged editions, conversely, are used to demonstrate the unique interpretation practices enabled when text-mining facsimiles of an original disk. In conclusion, the paper compares forms of knowledge constructed through each variation of the Mind Mirror software, linking varied software preservation practices with overlapping yet distinctive selections of sensible phenomena. After reviewing my findings, I conclude that the variation in identified sensibilities supports a pluralistic approach to preservation practices.

Chair: David C. Brock, Computer History Museum
Discussant: Hansen Hsu, Center for Software History, Computer History Museum

091. Life and Death of Partnerships in Research and Innovation II

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Hampton B

Innovation is emphasized as a crucial means of ensuring economic growth, employment and welfare in society. Public funding bodies throughout the world argue that universities, businesses and society must be linked closely to ensure this aim, and multiple programs seek to stimulate network formation and knowledge transfer. Collaborative research aimed at commercialization is not new, but rather described as an integral part of a ‘Mode 2’-science (Gibbons et. al., 1994). Today, however, collaborations are no longer conceptualized primarily as networks enabling open innovation, but increasingly as contractual partnerships and consortia working towards predefined ‘societal challenges’ and/or commercialization. While this contractual partnership-principle pervades current funding policies, there is little clarity regarding governance principles and evaluation criteria. The situation is one of massive investment in an experimental organizational model. How partnerships work, what type of research and innovation they foster, and how they can or should be governed are open questions. This panel invites contributions that address questions pertaining to the idea, mobilization and constitutive effects of ‘partnerships’ in research and innovation. Papers might address: Enrollment, mediation and exclusion of partners across industry and universities; Exploration versus exploitation: how to govern partnerships in a time romanticizing radical innovation?; Virtues and vices across different types of partnerships; The role of performance indicators in partnership governance: input, output, impact and ‘process indicators’; Theorization of ‘innovation’ and the drift towards ‘big is beautiful’. Participants:

Innovation for Health or Economic Gain: An Analysis of “Competing Logics” in Health Innovation Policy

James Shaw, Women's College Hospital; Renata Axler, University of Toronto; Payal Agarwal, Women's College Hospital; Laura Desveaux, Women's College Hospital; Sara Shaw, University of Oxford

The practice of identifying the “logic” or “logics” governing a particular domain of activity has become a popular analytic tool in Science and Technology Studies (STS), especially since the publication of Annemarie Mol’s “The Logic of Care” (2008). The notion of a “logic” is generally used to refer to a coherent set of practices within a defined domain of activity (e.g. health care
Unstable partnership as both strategy and tactics: knowledge innovation system in China

Wen-Ching Sung, University of Toronto

To embrace the global knowledge economy, the highest academic institute in China, Chinese Academy of Sciences (CAS), initiated the Knowledge Innovation Program in 1998. This institution reform intends to reach multiple goals, including organization restructuring and knowledge transfer. I will illustrate the experimental nature of the Knowledge Innovation Program by analyzing the development of a company, BGI Shenzhen. BGI Shenzhen is now the world’s largest genome center. Since its establishment in 1999, its development has been punctured by unstable partnership between scientists and government. In 1999, several Chinese scientists set up BGI in Beijing and registered it as a private company. Because BGI’s leaders were also researchers of CAS, BGI could affiliate with the CAS and count as part of the Knowledge Innovation Program. Such affiliation was crucial for BGI’s operation because it provided de facto start-up funds by enabling BGI to apply for government grant and take CAS’s graduate students. BGI was thus an ambiguous institute as it sat squarely on the boundary between the private and public. In early 2000s, BGI gradually became visible in international academia while it participated in various high-profiled global scientific initiatives on behalf of China. Yet the partnership between it and government was never secure, given the fact that the government did not endorse steady funding to BGI. In this paper, based on ethnographic research and long-term follow-up visits since 2002, I will illustrate why such unstable partnership was actually the government’s strategy and BGI’s tactics.

“Data for Good”: Harbinger of social sector change? Anissa Tanweer, University of Washington; Brittany Fiore-Gartland, eScience Institute

Literature on cross-sector collaboration explores a number of antecedents to public-private partnerships. Work has suggested that these collaborations are sometimes prompted by failure of the free market or public institutions (Bryson & Crosby, 2016), driven by resource dependencies (Selsky & Parker, 2010), or fostered by awareness that complex issues require diverse perspectives and multi-faceted approaches (Bryson & Crosby, 2016). In each of these perspectives, even though the constellation of actors in a given issue or action may be subject to change, the fundamental roles of the private and public sectors are seen as essentially fixed. Selsky & Parker, however, view some cross-sector collaborations as “harbingers” of greater social change, “designed to experiment with new sectoral roles and functions” (2010, p. 22). In these cases, public-private partnerships are less about addressing failure or compensating for inadequacies, and more about blurri the functions and boundaries of various sectors in response to systemic turbulence or complexity. We apply this lens to an ethnographic study of the “Data for Good” (D4G) phenomenon, which can be understood as the drive to make sense of and solve complex social problems through the use of increasingly available, combinable, and computable digital data. The D4G projects we’ve observed involve government agencies, academic researchers, private technology companies, non-profit organizations, open-source communities, and individual citizens. D4G efforts reveal important shifts in the social and political landscape. For example, bureaucratic data generated for operational expediency are now seen as raw materials to be exploited for a more prosperous, safe, and just society. Transparency is being pursued not only for the purpose of holding government accountable, but also sometimes for introducing innovations that address the needs of differentiated demographic communities. Calling on two years of participant-observation in “Data for Good” collaborations, we consider ways in which these efforts herald modern forms of civic engagement, novel public-private partnerships, and fundamental shifts in the roles of the public and private sectors. In developing these insights, we build upon STS scholarship on the imbrication of technological and institutional change. Bryson, J. M., & Crosby, B. C. (2016). The design and implementation of cross-sector collaborations: Propositions from the literature. Public Administration Review, 66, 44–55. Selsky, J. W., & Parker, B. (2010). Platforms for cross-sector social partnerships: Prospective sensemaking. Journal of Business Ethics, 94, 21–37.

The Plural Trajectory of a Nuclear Demonstrator in the Workshop of History: The Case of ASTRID Guy Minquet, IMT Atlantique Nantes; stéphanie tillement, Institut Mines Telecom Atlantique; Frederic Garcias, IAE Lille

France is currently engaged in the design of a technological demonstrator named ASTRID, for “Advanced Sodium Technological Reactor for Industrial Demonstration", which is supposed to be the first French "Generation 4" nuclear reactor. As such, ASTRID must demonstrate its capacity to reach the four main goals assigned by the GIF (Generation IV International Forum): safety, operability, ultimate wastes transmutation and a mastered investment cost (Le Coz et al., 2012). Among the six concepts retained by the GIF, France has decided to concentrate its efforts on the Sodium Fast Reactor (SFR). This technology has already been built and operated in France through three nuclear reactors: Rapsodie (1957-1983), Phénix (1973-2010) and Superphénix (1984-1997). Thus, Astrid is a very interesting object: it inherits a particular and ambivalent history, both national and international, while being structured by a promising future (design of a new ‘French-style’ nuclear industry, return to excellence in this field, goals of sustainability and safety of Gen IV reactors). Yet unclear (what political support? When will it be deployed, if it is? What position in the world?). It is supported by an existing, but instable, in progress “nuclear infrastructure” (Hecht, 2012) that the project trajectory will contribute to redefine in return. Indeed, the identity of Astrid project appears moving, oscillating between two opposite sides, i.e. research and industrialization, through discussion and negotiations between multiple actors. We collected data from document collection, semi-structured interviews (15) and observations of meetings between AREVA and various partners (CEA, Bouygues). The analysis of public documents as the annual report of the CEA and various public’s deliverable products bring a technical basis to understand the project and the issues through an institutional vision of the project. The interviews and the material traces (reports, presentations…) enabled us to analyze how actors report on ASTRID history, and the possible evolution of the role assigned to the ASTRID reactor and of the project objectives. The ASTRID design project appears as a fieldwork of ‘quasi-experimentation’, in which the actors – scientific, industrial and political – face a double challenge: absorbing a strong heritage, while being pulled by a technological promise full of unknowns. To create and develop ASTRID, they invent and deploy collective action forms in order to stabilize and frame work situations and collaborative practices despite knowledge incompleteness and distinct interpretations of ASTRID purposes.
In this paper, we paid attention to plural and successive problem formulations throughout long-term ASTRID project trajectory. Henceforth, such a huge project takes on a temporal contingency since it connects immediate and contingent preoccupations with the aims of a realization embedded in long-term dynamics (past and future). The notion of “long now” (Ribes & Finhoff, 2009) helps to apprehend the different elements that the protagonists of this story aim at holding together: advanced technology, social project organization, political decisions, with the prospect of a distant horizon.

Chair: Julie Sommerlund, University of Copenhagen, Faculty of Humanities

092. Predictability’s Promises II

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Jefferson

Modern techniques to render phenomena predictable — including computer models, big data analytics, and global observing systems — have rendered certain possibilities of the future legible, and the “not yet” calculable. Predictability calls forth futures yet-to-come: from forecasts of tomorrow’s weather or Earth’s climate in 100 years to the outcome of political elections; from the next earthquake to hit a population centre to the pathways of infectious diseases; from next year’s consumer choices to next month’s military operation by enemy troops. The concept of ‘predictability’ is a powerful organizing figure in the production of what is calculable. Predictability calls forth futures yet-to-come: from forecasts of weather or climate, infectious diseases, consumer choices, enemy troop movements, and so forth. Our panel seeks to bring together scholars from diverse fields to focus on the pathways of intervention. Predictability, in short, orders reality in curious ways. Our panel seeks to bring together scholars from diverse fields to explore the ways in which concepts, techniques, and practices of ‘predictability’ are constituted. Panelists in this session may address, but are not limited to, some of the following questions: • How is ‘predictability’ defined in the context under study? What is the history of ‘predictability’ as a concept in this context? • Using what conceptual frameworks, tools, and techniques is ‘predictability’ constituted? What epistemic space do these tools and frameworks give rise to? • How is ‘time’ constituted in the various sciences of predictability? • How is uncertainty brought into the realm of the calculable or measurable? • For what reasons, and for whom, has ‘predictability’ come to matter in different contexts?

Participants:
A Future Yet to Come: Predictability and Uncertainty in Personalized Medicine in Switzerland Nolwenn Bühler, University of Lausanne; Gaia Barazzetti, University of Lausanne; Alain Kaufmann, University of Lausanne

This presentation is about “predictability” in the context of personalized medicine’s developments in Switzerland. Emerging in the wake of the Human Genome Project, personalized medicine (PM) – also labeled precision, P4, stratified, or individualized medicine – benefits from the development of bioinformatics and digital tools, as well as of genomic sequencing which has dramatically become cheaper and faster. Claiming to break with the epistemological past of biomedicine, its promoters affirm that a revolution is under way, which will make future health conditions and susceptibilities predictable, and therefore actionable, through the identification of biomarkers and molecular targets. “There will be no sickness, but we will all be potential patients”, a formula uttered by the Director of a Swiss hospital, captures very well how “predictability” is envisioned as the future modality of medical epistemology and practices. Drawing on our on-going research on PM and public participation in Switzerland, we aim at showing how the concept of “predictability” is constituted in the practices and discourses of different actors involved in personalized medicine – scientists, clinicians, public health officers and patients. We will highlight the conflation of present and future as “predictability” becomes increasingly synonymous with “actionability”, and show how associated uncertainties are managed through various strategies, going from invisibilisation to public exposition. We will especially focus on the use of “scenarios” as an epistemic device from which to explore the future of PM that is yet to come.

In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self. In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self. In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self. In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self. In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self. In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self. In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self. In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self. In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self. In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self. In this paper, I discuss the technologies that promise to reveal the predictable authentic self for both employers and employees, led to a repeated discursive value placed on the authentic self.

Fixing the Future: Testing and Anticipatory Repair Benjamin Hayden Sims, Los Alamos National Laboratory

Repair and maintenance play an essential, behind-the-scenes role in maintaining the stability of sociotechnical systems. In many cases, repair can be a reactive process, occurring after an unexpected breakdown, and aimed at returning a system to its previous functional state. But repair can also play a more future-oriented role in shaping technological change. One form this takes is anticipatory repair, which characteristically relies on tools like testing, user studies, trials, and computer simulations that can project breakdowns and repairs before they occur. Among other things, these tools make it possible to develop and test repair strategies in advance, and incorporate repair and maintenance considerations into decisions about what technological systems to adopt. In contrast to reactive repair and maintenance, anticipatory repair actively engages in the production of technological futures, providing a set of tools for envisioning and managing trajectories of technological change. This connects repair to a wider set of anticipatory practices that are increasingly prevalent at the intersection of science, technology, and governance. The concept of anticipatory repair provides new insight into the role of repair in knitting together the past, present, and future of sociotechnical systems, making it...
possible to maintain and control development of these systems over long periods of time.

Chair: Elizabeth A. Reddy, University of San Diego

093. Postphenomenological Research 5: Artifacts and Selves
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Kent

This paper uses a postphenomenological perspective to explore the nature of objects, and their implications for how we should think of ourselves. Like actor-network and Harawayan accounts, postphenomenology maintains a relational ontology, approaching relationships as a bottommost unit of analysis. But what are the implications for our understanding of human consciousness, or how we should understand the morality of devices as complex as robots? Can these commitments ever overlap with more speculative perspectives that consider the independent—non-relational—statuses of objects? The school of thought called “postphenomenology,” building on Don Ihde’s body of work, has had a presence at the 4S conference and other STS venues for more than a decade. Researchers from philosophy, anthropology, media studies, design studies, sociology, and other disciplines come together to bring a distinct perspective on the bodily experience of technology into STS investigations. A broadly international group of contributors develops and expands the postphenomenological framework, building on insights from phenomenology, American pragmatism, actor-network theory, the social construction of technology, and feminist theory, among other perspectives. These ideas are refined through their application to concrete case studies in users’ experience of everyday devices, and scientists’ experience of the use of laboratory instrumentation.

Participants:
The Sensible Thing: Should Postphenomenology Be Object-Oriented? Yoni Van Den Eede, Free University of Brussels (VUB)
Historically, postphenomenology has worked, like phenomenology, to transcend modern subject-object metaphysics. But in doing so it has remained – quite consciously and “positively” – anthropocentric, if only trivially because it is (still) the human being perceiving and experiencing in the first place. This probably explains for a part the generally lukewarm attitude of postphenomenological research toward the stream of object-oriented ontology that has emerged in the last decade. Nevertheless, an approach such as Graham Harman’s “object-oriented philosophy” shares with postphenomenology a few important influential figures (Heidegger, Husserl) and a central conceptual starting point: Heidegger’s tool analysis. Yet Harman takes the latter into a wholly different direction, arriving eventually at a substantivist perspective that completely goes against the grain of postphenomenology’s relationalist ontology. However, “completely”? A closer look reveals that the two frameworks perhaps have more in common than they would care to point out. This is particularly prominent in relation to the most important postphenomenological notion, multistability. But still the question remains: should postphenomenology become more sensible to objects in the object-oriented way? Surely there are good reasons to put forth: at a time when “algorithmic technologies” are acquiring something resembling autonomous agency, a non-exclusively-human standpoint in investigating these forms of technological mediation might serve us well. Is trying to make sense of – to take the perspective of – the sensible thing (in the sense of “perceiving” thing) a sensible thing to do? As such, this inquiry forms part of a larger project of assessing the relevance of object-oriented views for philosophy of technology.

Irreplaceability and Vulnerability: How Machines Become Moral Agents Shoji Nagataki
In the near future, robotics and AI might be able to create beings with a human-like appearance and, in a sense, with a greater-than-human intelligence. They might be newcomers to our society. When machines become more than industrial products, what is necessary for them to be accepted and initiated into our society --- in other words, to coexist with humans? My answer is that if they are to be members of the society, they have to be moral agents which have a kind of humanity. To be a moral agent is to bear its own responsibility which others cannot take for it. I will argue that such a moral irreplaceability consists in its having an inner world --- one which others cannot directly experience, just as pleasure and pain. Humanity is essentially based on our having a body with a particular structure and function. By virtue of our embodiment, humans are subject to illness, injury, disability, and death. As Nussbaum says, a being who is not mortal nor vulnerable cannot possess the dignity of humans. Due to the fact of having a vulnerable body, we are aware that we need to live in an intersubjective and ethical world based on empathy. Thus, to be a moral agent is to be a vulnerable one. In this presentation, I will discuss a morality of those new comers in terms of irreplaceability and vulnerability.

A Speculative Approach to Postphenomenology Roisin Lally, Gonzaga University
This paper argues that by recognizing the fundamental relationship between praxical time and dwelling as a matrix of interweaving modes of being, society can subvert the potential reification of humanity by technology. This can only be achieved through a democratic process that involves participatory agents not only at the design level but also in the event of naming future innovations. By looking at the work of Alain Badiou, it is shown how a fusion of Heideggerian-inspired phenomenology and speculative ontology is critical for the advancement of postphenomenology, as revolutionary technologies become increasingly immersive.

Transcendental, Transcendent and Transcending Technologies Jonne Hoek, University of Twente (the Netherlands)
Immanuel Kant famously inaugurated the transcendental pursuit in modern philosophy. Spelling out conditions of possibility of experience, morals and metaphysics, is also foundational to the phenomenological tradition. (Husserl 1970; Heidegger 1962; Merleau-Ponty 2002) But do such transcendental considerations still make out part of our post-phenomenological investigations? On the one hand, it seems this must be the case. All philosophical pursuit is somehow trying to reveal something foundational, one could say. Heidegger states for this reason that phenomenological truth is “veritas transcendentalis”, and Merleau-Ponty even includes instruments as means by which we establish “active transcendence of consciousness” (15). Then again, Don Ihde seems to contest the transcendental character of postphenomenology, opposing it with external, inter-relatedness of embodied experience in the life-world (Ihde 2009, 2010).


Chair: Peter-Paul Verbeek, University of Twente

094. Studying Data Critically II
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 5 - Riverway

The goal of this track is to continue to deepen and expand the development of critical data studies within STS. STS research has investigated the ontological and epistemological (Craig and Thatcher, 2014; Kitchin and Lauriault, 2014; Leonelli, 2015), social, ethical, philosophical, and sociotechnical (Neff and Fiore-Gartland, 2015; Seaver, 2015; Beer)
consequences of the emergence of data and computational practices as processes of contemporary knowledge production. This panel track invites scholars who are investigating the epistemological challenges that data scientific processes of knowledge production present to more established applications of scientific methods. We invite papers that investigate how data science is augmenting, subverting, inverting, and otherwise altering the way knowledge production operates. In particular, we are interested in domains including astrophysicists, genomics/proteomics/precision medicine researchers, neuroscientists, agronomists, ecologists, political scientists, sociologists, business and financial analysts, mathematicians and artificial intelligence researchers. Methodologically, we encourage papers that utilize quantitative and qualitative methods, including standard and trace ethnographic approaches. We invite: 1. Situated case studies of data science in action in particular domains especially the sciences. 2. Efforts to “provincialize” (Chakrabarty, 2007) the current mainstream data/computational narratives and provide space for expansive data discourses. 3. Work that offers a clear articulation of data science studies situated within a Science and Technologies Studies theoretical and empirical context. 4. Methodological considerations of the digital and analog toolbox necessary to conduct multi-sited, trans-disciplinary, humanspace + bitspace research.

Participants:

Authoritarian and Democratic Theories of Social Experimentation in 20th Century US Industry and Policymaking

Jorge Nathan Matias, MIT Center for Civic Media

Field experiments on human behavior have often been associated with paternalist theories of power, from industrial era scientific management to contemporary libertarian paternalism from governments and internet companies. Yet even as the idea of science has been used to reduce the agency of workers and citizens, a parallel history of activists and methodologists have worked on pluralistic political epistemologies of experimentation. In this work of intellectual history, I revisit arguments over the authoritarian and democratic role of social experiments of civic life. In the early 20th century, labor unions and early advocates of social psychology including Robert Valentine and Kurt Lewin resisted paternalist research of systematic management. They argued that manager-defined experiments reduced workers’ individual and collective autonomy. In the second half of the 20th century, the political philosopher Karl Popper worried that government social engineering would advance eugenics and tend toward authoritarian states. In factories and governments, experimental methodologists such as Lewin and Donald Campbell designed citizen participation into the process and outcomes of experimentation itself. Campbell imagined epistemologies of experimental knowledge that invited and supported citizen control, advocating for pluralistic forms of democratic participation through citizen social experiments. Throughout these histories, activists and researchers attempted to reconcile deductive hypothesis testing with the disputatious networks of democratic knowledge-making. By embracing this political and methodological challenge, these figures went on to establish new fields and create new directions of social enquiry. As STS scholars attempt to theorize contemporary practices of data science, including the widespread practice of randomized trials by governments and large corporations, these historical cases offer historical antecedents to contemporary debates.

Infrastructure's Hail: Data-Service Infrastructure and Transformations to Social-Ecological Synthesis Science

Charles Hahn, University of Washington

This paper draws on ethnographic field and archival work tracking a socio-ecological synthesis initiative to think about the ways in which data service infrastructures are transforming synthesis endeavors. Scientific synthesis is the assembling of heterogeneous expertise and data to produce new collaborations, knowledge and data products, often across large temporal or geographical scales as well as across typical disciplinary boundaries. These sorts of projects have been important over the past number of decades in the environment-related sciences, especially as a method of the socio-ecological systems (SES) and related frameworks. Increasingly these SES and related frameworks are being supported by data management infrastructures which provide a variety of data services, from developing data sharing plans to the actual processes of collecting, cleaning and archiving of datasets. While the service arrangement of these infrastructures makes them appear to simply be facilitating SES synthesis in a quantitave sense (e.g. increasing efficiency or size of synthesis), in this paper I draw on data studies literature to argue that in fact they enact qualitative (i.e. epistemic, ontological and value) transformations to the synthesis practices and researcher subjectivities through the incentivization of particular (meta)data and knowledge standards, management procedures and archival practices that are requirements of these services. Furthermore, while it also may seem that these services must be called upon by researchers, I show from my fieldwork ways in which we might think of the infrastructure as itself calling upon researchers, and thus how, through the provisioning and promotion of these services, synthesis activity is increasingly interpellated into a data-driven regime.

Linked Objects, Inferred Subjects: Configuring the Performative Potential Through Data Science in the UK Census

Baki Cakici, Goldsmiths, University of London

Since 1801, the census of the United Kingdom has been conducted by asking citizens a series of questions, initially through enumerators, and later through questionnaires. For the next census of England and Wales in 2021, the Office of National Statistics (ONS) is developing an administrative data census that will infer population statistics through databases held by the state. Although this is intended only as a test that will run in parallel with the regular questionnaire-based census, it marks a moment of major methodological experimentation. In addition to using administrative data sources held by the state such as work and pensions records and patient registers, ONS is also investigating the use of big data analytics in the production of population statistics. Drawing on material collected through a collaborative ethnography of five European National Statistical Institutes as part of the ARITHMUS project, I argue that changes in population statistics methodology have social and political implications for those being counted. Big data analytics and similar methods that make use of large collections of existing data diverge significantly from more traditional methods for generating population statistics in that the subjects are inferred from data traces drawn from a history of transactions, as opposed to declaring themselves through questionnaires. These identification methods, of which the administrative data census is an example, configure the performative potential of subjects differently, opening up new sites of subjectivation and political engagement, while closing others.

Data Science Interdisciplinarity: Methodological Fluidity, Disciplinary Boundaries

Laura Noren, New York University; Britanny Fiore-Gartland, eScience Institute

Through ethnographic research and qualitative interviews in one primary fieldsite and two secondary fieldsites, all academic data science institutes, the paper develops a framework for situating the flows of methodological similarities between and around departmental and disciplinary boundaries. Theoretically, the paper extends the “trading zone” concept developed by Kellogg, Orlikowski, and Yates to describe the emergent, ambiguously bounded knowledge production domains in which accountability is uncertain that characterize a growing number of fields (2006). The paper argues that academic practices of data science include some of the criteria for ‘trading zone’ interactivity, but that the traditional bureaucratic structure of academic departments resists and complicates the spread of methods across disciplinary boundaries. The paper introduces adjacent, distant, and radical interdisciplinarity to add meaningful utility to the current unidimensional understanding of interdisciplinarity. Within this framework, the ethnography reveals key tensions. While methods may reveal similarities between fields as distinct as music studies and astrophysics, organizational norms and structures inhibit
collaboration, especially in distant and radical interdisciplinary groups. Within academia, organizational barriers between disciplines are reified in departmental structures that provide inertial structuration along many dimensions (Giddens). Concretely, divergences in organizational characteristics include: salaries; attitudes about informal teaching; expectations about the number of formal classes taught per semester; expectations of teaching assistant support; expectations about funding students on grants versus dedicated university funding; expectations about the proper number and length of postdoc years; expectations about the instrumentality of serving on committees. Additionally, divergences in attitudes about the proper practice of science and career trajectory exceed formal organizational characteristics. These latent differences include: use of proprietary vs open source software; attitudes about how to define reproducibility; definitions of data science; inclusion of research design as a step in the practice of inquiry; and differences in definitions of ethical research practice, especially with respect to data privacy and security. Sharing methods introduces porosity, especially between adjacent disciplines, but does not completely override normative and structural distinctions between disciplines. The analysis contributes to our understanding of data science as knowledge work in a long-standing, deeply bureaucratic organizational context. Given the rapid growth in data scientific domains, it is critical to understand how methodological similarity can and cannot route around structural and cultural norms within disciplines and departments.

Autoethnographic Methods for Studying Data-Driven Knowledge Production R. Stuart Geiger, UC-Berkeley; Charlotte Mazel-Cabasse, UC Berkeley; Brittany Fiore-Gartland, eScience Institute

This paper is based on a collaborative, multisided ethnography of data science, in which the authors have been embedded in aligned institutes dedicated to data science. In this paper, we focus on autoethnographic methods, which can be powerful and generative ways to conduct empirical investigations into data science practices across many theoretical issues. This paper reviews several different exercises, initiatives, and activities that we have conducted in our fieldwork, reflecting on how they help us better understand different aspects of what it means to do data science. First, this paper discusses an activity in which an ethnographer and a data scientist set out to install all the software infrastructure needed to run a particular machine learning library on a new computer. This proved to be a generative method to explore not only the layered infrastructural dependencies upon which contemporary data science runs. Second, this paper discusses an initiative in which we committed to conduct the analysis of a standard social science survey of data scientists using best practices and platforms for reproducibility, as they were communicated to us by various participants. This provided a rich opportunity to explore what reproducibility means to different people in a particular embedded context. Finally, this paper discusses our use of a website hosted via an open source GitHub repository to coordinate a peer learning group’s activities in one of our fieldsites. This provided opportunities to understand the role that the GitHub platform plays in the coordination of work.

Chair: Charlotte Mazel-Cabasse, UC Berkeley

095. 4S Council Business Meeting

Business Meeting
12:30 to 2:00 pm
Sheraton Boston: Floor 3 - Beacon D

096. Ethnografilm Dailies I

Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Commonwealth

What better way to spend lunch than in a dark room watching ethnographic films? Our “ethno-lunch” began in Barcelona, where several dozen people gathered each day after the morning sessions to relax, eat their lunch, and view a selection of short films selected to represent the “best of” the films screened at Ethnografilm Paris during the April 2016 festival. We continue the tradition with an entirely new selection of films from the 2017 festival.

097. Image, Material, Transfer: A Materials Lab Workshop

Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Olmstead

In collaboration with the Harvard Art Museums, 4S is sponsoring a hands-on workshop in which participants will have the opportunity to try their hand at various historical techniques of image transfer and scaling. We will situate the camera lucida, the grid method, and pricking and pouncing as representational practices within their historical and artistic contexts. In handling these tools and executing these techniques, we will ask: what kinds of choices and challenges do their materialities pose for artists, scholars, and conservators? How are artistic materials made sense-able for these different experts? This workshop, designed by the Art Museums’ Materials Lab -- a space for actively looking at and exploring art and art materials -- aims to highlight the various kinds of “technical” knowledge that are useful in a museum, such as that of art making, conservation, and research. Francesca G. Bewer, Research Curator for Conservation and Technical Studies Programs, will lead the workshop. Please register in advance here: https://goo.gl/forms/KNHJ7F0KQmYjYiH1s The workshop’s theme was developed in conjunction with the current exhibition “The Philosophy Chamber: Art and Science in Harvard’s Teaching Cabinet, 1766-1820.” A TOUR of an exhibition at the Harvard Art Museums will follow. Please see separate listing for more information. The workshop will be capped at 16 participants; the tour will be capped at 30 participants. Though participation in both is highly encouraged, 4S attendees may register for either the materials workshop or the tour.

Presenters: Francesca Bewer, Harvard Art Museums Ethan Lasser, Harvard Art Museums Chair: Grace Kim, Massachusetts Institute of Technology (MIT)

098. Getting Out The 1,000 Words 1: Op-ed and Short Form Public Writing Panel Discussion

Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 5 - Riverway

STS scholars have much to contribute to public discussions of climate, energy, automatization, social media, medical research and care, etc. But how best to get the word out? This lunchtime workshop features a panel discussion with news editors and STS scholars about writing for a public audience. Come hear their tips for how to pitch and craft an effective op-ed message or short form story, and learn about options for where to place it. Presenters include the US editor of The Conversation, an online outlet for academic commentary with “journalistic flair”; a former editor of Science Times (the NY Times’ science section); and STS scholars who make regular contributions to news and other public media outlets. Part 1 of a 2 part series.

Presenters: Maria Balinska, The Conversation David Corcoran, MIT Knight Science Journalism David Kaiser, MIT Seth Mnookin, MIT Naomi Oreskes, Harvard University - History of Science Chair: Heather Paxson, Massachusetts Institute Of Technology

099. “NSF speed dating” with STS Program Director Fred Kronz

Special Event
1:00 to 3:00 pm
Sheraton Boston: Floor 3 - 3rd Floor Registration

NSF STS Program Director Fred Kronz will be on hand to listen to STSers pitch their research proposal ideas and provide direct feedback. Look for a sign-up sheet at a table near Registration to reserve a 15-minute spot.
100. Making and Doing Presentations
Traditional (Closed) Panel
1:00 to 4:00 pm
Sheraton Boston: Floor 2 - Grand Ballroom
Participants:

(T)racing Eyes and Hearts: An Installation to Explore the Physiology of Empathy Regan Lawson, Georgia Institute of Technology; Udaya Lakshmi Tatamangalam Ananthanarayanan, Georgia Institute of Technology; Shruti Dalvi, Georgia Institute of Technology; Nassim Jafarainami, Georgia Institute of Technology; Anne Pollock, Georgia Tech; Lewis Wheaton, Georgia Tech
A STS STEM Education Incubator: The Co-Making of Inquiry Nicole Mogul, UMD; David Tombok, University of Maryland, College Park; Matthew Aruch, University Of Maryland College Park
AirTRACS: Community-based Air Quality Monitoring Maria Michaels, Rensselaer Polytechnic Institute
Biomaterial Matters: Fitting Humans into Coconos, A Speculative Prototype Lisa Onaga, Nanyang Technical University; Laura Forlano, Illinois Institute of Technology; Galina Mihaleva, Nanyang Technical University; Anne McKnight, Shirayuri University
Collaborative urban sensing with the “Dustbox” air quality monitor Lara Houston, Goldsmiths, University of London; Jennifer Gabrys, Goldsmiths, University of London; Helen Pritchard, Goldsmiths University of London
Construction Sets for DIY Medical Technologies and their Black Box Counterparts: An interactive exhibit Anna K Young, MIT; Nikolias Albarran, MIT; Amy Moran-Thomas, MIT; Jose F Gomez-Marquez, MIT
Data Sense Dawn Najas, Intel
Design Workbook Variations: Exploring Biosensing Privacy Futures Richmond Y Wong, University of California, Berkeley; Ellen Van Wyk, University of California, Berkeley; James Pierce, University of California, Berkeley
Detoxifying the Environment across Temporalities Nick Shapiro, Chemical Heritage Foundation
Doing STS at the science/policy intersection: Making the next generation of boundary-crossing practitioners Eric Kennedy, Consortium for Science, Policy, and Outcomes - Arizona State University; Matthew Harsh, Concordia University
Emotional Interpretation & Materiality of Biosensing Noura Howell, School of Information, UC Berkeley
Empirical prints and contrapuntal inscriptions Kasper Ostrowski, Aarhus University
Engineering Comes Home: Co-designing Local Infrastructure with Residents of a London Housing Estate Charlotte Johnson, UCL; Sarah Bell; Aidian Borron, University College London; Robert Comber, Newcastle University; Kat Austen, ilab; Jun Matsuishi, ilab
Face-off! Platform versus Self: A photobooth experiment Marie Steensen, Aarhus University, Denmark; Annette Markham, Aarhus University Center for STS; Mette Hegaard, Aarhus University, Centre for STS-studies; Maria Thing Nielsen, Aarhus University, Centre for STS-studies; Lydia Choi, Aarhus University, Centre for STS-studies; Julie Bredholt, Aarhus University, Digital Living Research Commence; Jette Mia Johansen, Aarhus University, Information Studies, Digital Living

Feminist Theory Theater Yelena Gluzman, UCSD; Sarah Klein, University of California, San Diego
Generative STEM: Circulating Unalienated Value in Education, Labor and Environment Michael Lachney, Rensselaer Polytechnic Institute; Audrey Bennett, Rensselaer Polytechnic Institute; Daniel Lyles; Zoe Zatz, Rensselaer Polytechnic Institute; William Babbitt, Rensselaer Polytechnic Institute; David Banks, Rensselaer Polytechnic Institute; Ron Eglash, Rpi
Getting a Sense of the Place: Navigating FemTechNet’s Critical Race and Ethnic Studies Workbook George Hoagland, Minneapolis College of Art and Design; Veronica Paredes, University of Illinois at Urbana-Champaign; Ann Wu, University of Illinois Urbana Champaign
Handholds: making sense of bodies through slaughter Kara Wentworth
Integrating STS into Bioethics and Medical Humanities Programs Julia Knoppe, Case Western Reserve University
Making and Doing STS with Undergraduate Engineers: The UVA Approach Caitlin Donahue Wylie, University of Virginia; Sean Ferguson, Engineering and Society, University of Virginia; TolulFalolo Odumosu, University of Virginia; Rider W Foley, University of Virginia; Benjamin Laugelli, University of Virginia; Peter Westin, University of Virginia; Bryn Whiteley
Making Sensible in 360° Alexandra Sharp Lippman, University of California, Davis
Our Driverless Futures: Speculating Moral Dilemmas of Self-Driving Cars Lorina Mercado Navarro, Georgia Institute of Technology
Pedal Transcriba, an Ethnographic Device of (and for) Qualitative Research Luis Felipe Rosado Marillo, CNAM/IFRIS
Politicizing the scientific self through media interventions Anna Darnova, Institute for Advanced Studies, Vienna - Technoscience and Societal Transformation
Presenting the Collaborative Research Toolkit (v.02): a copyleft resource for the co-design of experiments and research processes Enric Senabre Hidalgo, IN3 - Open University of Catalonia // CECAN - University of Surrey
QEERI's Science Majlis Anto Mohsin, Northwestern University in Qatar; Jemina Legaspi, Northwestern University in Qatar
Rethinking Citizen Science through doing Citizen Science Brian Robert Callahan, Rensselaer Polytechnic Institute; James Dylan Rees, Rensselaer Polytechnic Institute
STS approaches to public engagement with science: Synthetic biology Rae Ostman, Arizona State University; Lisa Bennett, Arizona State University; Stephanie Long; David Sittenfeld, Museum of Science; James Wetmore, Arizona State University
Situated Intervention in Medical Guidelines: Appraising and Including Different Knowledge (AID Knowledge) Teun Zuidenfire-Jerak, Department of Thematic Studies - Technology and Social Change, Linköping University
STS Design and Innovation: Disciplinary Discomfiture Dean Nieuwsma, Rensselaer Polytechnic Institute; James Malazita, Rensselaer Polytechnic Institute
STS Olfactorium Morana Alac; Evelyn Walker, UCSD
Technological theory for all: Teaching experiments on STS in Chile Martin Andrés Perez Comisso, SFIS - Arizona State University
The making of an undergraduate Sociotechnical Ethics Society
Toward Improving Public Policy for Structural Engineering
Design of Bridge, Transportation, and Marine Infrastructure
Julie Mark Cohen, Julie Mark Cohen, PhD, PE, SECB
Tracing Design Ecologies Daniel Cardoso Llach, Carnegie Mellon University
Undergraduate STSers Learn by Doing in the Trump Era. Jane Lehr, California Polytechnic State University; Matt R. Klepfzer, California Polytechnic State University
What it is to see: a simulation of artificial vision Cordelia Erickson-Davis, Stanford University
Zika and Feminist STS: Building a Network, Doing Collective Scholarship Alexandra Minna Stern, University of Michigan; Laura Mamo, SF State; Susan E. Bell, Drexel University; Anne Figert, Loyola University Chicago; Ann Kelly, University of Exeter; Kristy Birchard, Drexel University; Sueann Caulfield, University of Michigan; Ilana Lowy, Curs-Cermes; Vanessa Grotti, European University Institute, Florence, Italy; Debora Diniz, International Women's Health Coalition, University of Brasilia, Brazil
Zika and feminist STS
Environmental Data and Governance Initiative: Engaged STS Responding to the U.S. Administration Michelle Murphy, University Of Toronto; Sara Wylie, Northeastern University; Jerome Whittington; Joan Donovan, Data & Society Research Institute; Rebecca Lave, Indiana University Department Of Geography; Nick Shapiro, Chemical Heritage Foundation
Snowden Surveillance Archive Andrew Clement, University of Toronto

101. Cryo (In)Sensibilities: Reproduction in the Age of Ice I
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon A

Reproduction has entered a new preservation age: In the face of serious disease, reproductive tissue can be preserved for later use; egg freezing is, at times, offered as a company perk, while men training to become chefs are encouraged to protect their gametes from the heat of the kitchen by cryopreserving them. In Israel, parents can legally inherit their dead son’s cryopreserved sperm, while parents located in the West imagine the products of their fertility travel—the embryo as a frozen sibling temporarily residing abroad. Clearly, preservation technologies radically change our understandings of reproduction, including notions of reproductive time. By enabling people to procreate in other temporalities, preservation disentangles reproductive time from the somatic time of the body, simultaneously reorganizing normative temporalities in ethical discussions, within the law, and in the popular imagination. Meanwhile, preservation opens up new business opportunities such as reproductive/health markets as well as the commercial efforts involving reproductive gamete and tissue banking. This panel welcomes papers interested in the ways that preservation technologies are made to appear (in)sensible within the arenas of bioethics and law, in clinical practices, by freezers themselves, in various commercial entanglements, during different historical points of time as well as in various sociotechnical imaginaries (Jasanoff, 2015).

Participants:
Legal conceptions: Shifting Values, New technologies, and Regulations of Egg Donors in Taiwan Yuling Huang, National Cheng Kung University

This article investigates the development of regulatory system of egg donation and its rationalization in Taiwan since the mid-1980s, when Taiwan’s first test tube baby was born. The application of assisted reproductive technology (ART) demanded a set of regulations for ART centers, infertile couples, and gamete donors to follow. The policy-makers in the Health Administrations and medical professionals discussed the eligibility of gamete donors, which had been shaped by the shifting social values and newly-applied technologies. Before the regulations, the ART centers practiced in vitro fertilization with eggs donated from the female recipient’s sisters or friends. The early regulations emphasized the concerns of confused kinship and commercial motivations, while the new one in 2007 began to adopt social values of gender equality and body autonomy. Policy-makers also debated whether they should guide the donor’s race as well as the recipient’s marriage relationship and age. In clinical practices, because of the advanced egg-freezing technology and the institutionalization of donor benefits, the ART centers and doctors gradually relied on anonymous donors. I draw on a qualitative survey of medical, mainstream, legislative, and marketing literatures to demonstrate that the legal conceptions resulted from ART practices, as well as the excluded ones, have been defined and contested by the shifting social values, acceptable kinship, and developing preservation technologies in contemporary Taiwan.

Finitude and the Frozen Egg: Posthumous Conceptions in the Age of Cryopreservation Lucy van de Wiel, University of Cambridge

The recent popularisation of egg freezing has shifted the temporal logic governing reproduction in the 21st century. While popular and academic discussions of egg freezing have primarily focused on the anticipation of future infertility, this presentation addresses how egg freezing also entails a confrontation with finitude in the broader sense of the word, as frozen eggs allow the possibility of a type of posthumous reproduction that is altogether decoupled from the vitality of the living body. The significance of this possibility is not so much the practice of posthumous conception itself, but the staging of a structural encounter with the continued reproductive potential of the eggs in the face of the mortality of the freezing subject through informed consent procedures, which confront every woman who freezes her eggs with the decision on the destination of her eggs in the future, including the future beyond her own death. With a cultural analysis of US, UK and Dutch informed consent procedures, I discuss how egg freezing can extend reproductive decision-making beyond the lifespan of the women opting for this procedure. On the one hand, these consent forms allow for the formation of posthumous intended kinship bonds. On the other, they are the basis for a reflection on how eggs frozen for one’s own use may be rerouted to reproductive or research egg donation. Given that only an estimated 10% of women return to use their frozen eggs while donor eggs are in high demand in various industries, there is much at stake in the processes through which frozen eggs become reassigned to heterologous donation practices. Drawing on feminist STS scholarship of tissue economies and clinical labour (Waldbry, Cooper), I suggest the frozen eggs attain a “double promissory value” when both egg provider and egg recipient are invested in the generative potential of the same eggs at different times.

Grandparents Demanding Genetic Grandchildren: What can Posthumous Reproduction Teach us about Israeli Family Norms? Yael Hashiloni-Dolev, Academic College of Tel-Aviv-Yaffo, Israel; Zvi Triger, The college of Management Academic Studies, Israel

Posthumous grandparenthood has been permitted and performed to date only in Israel. According to European and American professional guidelines, relatives of the deceased, with the exception of the surviving partner, have no ethical claim to the deceased’s cryopreserved gametes. In Israel as well, parents have no legal standing regarding their deceased child's sperm; nonetheless, dozens of requests have been submitted to Israeli
family courts by parents seeking permission to use their deceased sons’ sperm to create genetic grandchildren. These cases were based on a contract between the potential grandparents and a single woman who did not know their son but wished to use his sperm to become the mother of their future grandchild. The most contentious cases involved legal disputes between potential grandparents and their sons’ widows who did not wish to get pregnant posthumously, and objected to the parents’ claim to create a grandchild with a single woman who had not known their son while alive. Our study analyzes legal disputes over posthumous grandparenthood, studying the normative assumptions about reproduction and family obligations in contemporary Israeli society. Our preliminary finding suggest that while in less family-oriented cultures, procreation is looked upon as an intimate matter between the potential mating partners, in Israeli-Jewish society reproductive plans are considered a matter of concern of the extended family, and even the state. We will demonstrate that the borders between generations are vague and contested, and show the patriarchal and militaristic aspects of the discourse in this regard.

Putting Menopause on Ice? Cryopreserved and Transplanted Ovarian Tissue as Naturalized Estrogen Booster Charlotte H. Kroløkke, University of Southern Denmark

Denmark is a global leader in the cryopreservation and later successful thawing and transplantation of ovarian tissue. Danish girls (and women) who, due to medical treatment such as chemotherapy, run the risk of losing their fertility are offered to have ovarian tissue extracted and preserved. Currently, more than 700 preservations from young girls and women (age groups 0.5-38 years of age) are stored in the freezers at the Laboratory of Reproductive Biology in Copenhagen. In a Danish clinical study, one third of women who had ovarian tissue transplanted were subsequently successful in achieving pregnancy and birth (Jensen et al., 2015). In this presentation, I turn to the ways that sociotechnical imaginaries (Jasanoff, 2015) involving reproductive tissue, cryopreservation technologies, legal frameworks, clinical ambitions, ethical debates, medical markets, and public reason come together. I specifically privilege interviews with the scientific personnel at the Laboratory along with observational studies emphasizing how stories of reproductive and technological progress are constructed. Because serious illness is currently the reason for the extraction and preservation of ovarian tissue, sociotechnical imaginaries appear at first to be deeply entangled with concrete female bodies, treatment protocols, family networks, and affects of hope. In the Laboratory of Reproductive Biology, however, the sociotechnical imaginaries of cryopreserved ovarian tissue involve the ability to postpone menopause and the discovery of ovarian tissue transplants as a “natural” remedy for osteoporosis. In these sociotechnical imaginaries, ovarian tissue is dis-entangled from the realm of reproduction and re-entangled with the market in women’s health.

Chair: Charlotte H. Kroløkke, University of Southern Denmark

Discussant: Janne Rothmar Hermann

102. Bestial Technoscience: Nonhuman Animals as Technology and in Scientific Practice

Traditional (Closed) Panel 2:00 to 3:30 pm Sheraton Boston: Floor 3 - Beacon B

Nonhuman animals have long played tremendously important roles in science and technology. Their bodies, companionship, and remarkable sensory perception have figured — as inspiration and instrumentation — in the works of scientists, engineers, doctors, politicians, trainers, and artists (Scranton and Schrepfer 2004). From Karen Rader’s history of genetically standardized mice (2004) to the menagerie of bugs populating Hugh Raffles’ Insectopedia (2010), nonhuman animals have been, and are, fodder for (human) thought, action, and experiment. This panel continues the conversation about other animals as significant characters, or “companion species” (Haraway), in the shaping of science and technology. Rather than assuming these other forms of technology are instrumental ends, we invite papers that interrogate the knowledge systems, social processes, and institutional relations that generate particular relations of becoming with (Haraway 2008), detachment (Candea, Cook, Trundle and Yarrow 2015), or exploitation (Pachirat 2011) among humans and other animals, through which humans and their companion animals are crucial actors in scientific practice and become new forms of technologies. We welcome papers that address the political, theoretical, methodological, or material implications of attending to nonhuman animals’ enlistment and involvement in human projects of surveillance, war, peace-making, global health, and environmental stewardship. We invite submissions that draw on a variety of disciplines and methodologies, including science and technoscience studies, multispecies ethnography, animal studies, and animal geography. This panel welcomes scholars who are creatively engaging with the themes and concerns listed here and encourages research on humans and other animals in non-Western, global South, and/or postcolonial contexts.

Participants:

Multispecies Touch: A Mine Detection Dog and His Human Trainer Diana P Pardo Pedraza, University of California Davis

The Belgian Shepherd Malinois is a well-known working dog breed, particularly famous in the demining world for their extraordinary sensory perception, physical strength, and mental traits. These dogs are bred and trained as animal detectors around the world and deployed in highly mine-contaminated countries such as Cambodia, Bosnia, South Sudan, and Colombia. While they are products of breeding and training processes, as well as instruments within a standard demining toolbox, these Mine Detection Dogs (MDDs) are also thought of as part of a human-nonhuman team that must train, work, and live together in order to excel and survive in the risky business of mine-clearance. Based on an 18-month fieldwork, this paper examines ethnographic encounters between a dog trainer, Ibrahim, and a Mine Detection Dog (MDD) of Hamilton, in a specific historical and political context: the Pilot Project of Humanitarian Demining in Colombia. This paper is particularly interested in exploring the ambivalent and complex ways of touching and being touched that emerge in the training process. Shaped by dominant militaristic masculinities and cost-efficient operational aims, the training sessions are moments of encounter in which both the dog trainer and the Mine Detection Dog are enacted. Thus, these trainings can be conceptualized as both contact and impact zones. They put the participants, humans and nonhumans alike, inside the complexities of instrumental and affective relations, multispecies hierarchical schemes, and technoscientific economies and practices.

The Apian Pharmacopeia Chloe Silverman, Drexel University

This talk describes the pharmaceuticalization (Bell and Figert 2012) of honey bee health, a process that has accelerated alongside growing beekeeper and entomologist concerns about unexplained colony losses over the past decade. Despite continued uncertainty about the causes of colony losses and the role of pesticide exposures in rendering bees vulnerable (Kosek 2010; Kleinman and Suryanarayanan 2016), many entomologists agree that controlling populations of parasitic mites in bee colonies is the key to their survival. The process of medicating bees has several important features. First, the pharmaceuticalization of honey bee health means beekeepers need to track drug administration to prevent toxic interactions. For bees, this means not only managing those treatments intentionally applied, but also those ferried in from outside the colony, notably pesticides and fungicides. Second, beekeepers manage resistance, both that of parasitic mites to the treatments they are products of breeding and training processes, as well as instruments within a standard demining toolbox, these Mine Detection Dogs (MDDs) are also thought of as part of a human-nonhuman team that must train, work, and live together in order to excel and survive in the risky business of mine-clearance. Based on an 18-month fieldwork, this paper examines ethnographic encounters between a dog trainer, Ibrahim, and a Mine Detection Dog (MDD) of Hamilton, in a specific historical and political context: the Pilot Project of Humanitarian Demining in Colombia. This paper is particularly interested in exploring the ambivalent and complex ways of touching and being touched that emerge in the training process. Shaped by dominant militaristic masculinities and cost-efficient operational aims, the training sessions are moments of encounter in which both the dog trainer and the Mine Detection Dog are enacted. Thus, these trainings can be conceptualized as both contact and impact zones. They put the participants, humans and nonhumans alike, inside the complexities of instrumental and affective relations, multispecies hierarchical schemes, and technoscientific economies and practices.
of bee health encourages bee researchers to investigate the pharmacological properties of bee nutrition, including the immunoregulatory effects of pollen. Medicalizing (Conrad 2007) a range of husbandry practices like supplemental feeding and mite treatment becomes a way to regulate beekeepers’ use of medicine as well as encourage it, and medicalization becomes a way to urge restraint.

“Fast Food for Lab Mice: Umami Taste Mechanisms in Non-Human Animals and How They Relate to Doritos” Sarah Tracy, University of California, Los Angeles

Animal experimentation has been axiomatic in modern science (Haraway 2003; Franklin 2007; Rader 2004), and the food and sensory sciences are no exception. Manipulations of the chorda tympani nerves of dogs, the glossopharyngeal nerves of mice, and the taste cortex of macaques gave weight to the existence of a unique umami (“savory delicious”) taste long before molecular techniques revealed unique umami receptor sites (Chauddari et al. 2000). The sentience of laboratory animals—that they eat for pleasure—is evident; however, studies since the 1970s have established the obesogenic property of large amounts of flavor enhancer monosodium glutamate (MSG) delivered parenterally (intravenously) or orally to infant mice. In other words, MSG is very effective for making the baby rodents of diabetes research become fat (e.g. Bunyan 1976). This paper traces how chemosensory (taste and smell) science conducted in Japan, the United States, and Europe was built upon investigations into the metabolic and sensory capacities of non-human animals. Inspired by recent work proposing sentence, rather than rationality or verbal language, as the basis for membership in a moral community (Morar 2001; Marder 2013), I frame MSG as an artifact of a trans-species choreography of responsibilities steeped at once in pleasure, violence, and uncertainty. In chemosensory research, the chemosensory capacities of laboratory animals are extrapolated onto humans, even as researchers acknowledge species-specific variation. This paper asks: how are non-human metabolisms fundamentally entangled in scientific knowledge of human chemosensory capacity—and in the manufacture of commercial additives that confer eating pleasure? (Is instant ramen flavoring designed for mice?)

Dispelling the Mythological Animal Relations and Identity: Theories of Technoscience Apologists Elan Ohayon, Green Neuroscience Laboratory; Paul Tsang, University of Toronto; Ann Lam, Physicians Committee for Responsible Medicine

Works examining the boundaries demarcating humans, other species and technological entities (e.g., cyborgs) have helped expose the fuzzy nature of individuality. The hope is that, in identifying and confronting the often arbitrary nature of these boundaries, we can create the necessary conditions to comprehend, respect, befriend, cooperate and co-evolve.

Although the ostensible goal is laudable and fuzzy nature of individuals -- and natural kinds -- certainly true, the project remains anthropocentric, covering up a continued speciesism and exploitative world-building under the guise of post-colonial sensibilities. Far from being an equalizing force, certain discourses (e.g., Haraway, “When Species Meet”, 2008) facilitate assault on identity integrity -- at the individual and species scales -- increasingly manifested in everything from the erosion of neuro-autonomy to a renewed push for chimeric research. To be clear, the concern is not the positive transgressive challenges to ad hoc and imposed boundaries but rather that the fetishization of technology is used to make a host of non-consensual activities palatable and to dismiss opposition to practices such as animal experimentation. Whereas notions of companionship should serve to highlight the depth of betrayal, they are instead employed to excuse exploitation masquerading as collaborative scientific endeavors. It is precisely because of ontological continuums that we must recognize and respect the absence of consent. To this end, we draw on our laboratory experiences to outline alternative frameworks and effective human-based biomedical methods (xeno-free stem cells, neuroimaging, computational approaches) that acknowledge the continuum while simultaneously promoting animal, environmental and social justice.

Chairs: Jia Hui Lee, Massachusetts Institute of Technology (MIT) Diana Pardo Pedraza, University of California Davis

Luisa Reis Castro, Massachusetts Institute of Technology (MIT)

Discussant: Sarah Tracy, University of California, Los Angeles

103. Perspectives on “Structural Disaster”: Critical Comparative Analysis of Investigation and Insensibility in Extreme Events

Traditional (Closed) Panel

2:00 to 3:30 pm Sheraton Boston: Floor 3 - Beacon D

One of the most influential assumptions underlying the relationship between democracy and policy can be epitomized by the “communication turn” of STS. In fact, the importance of bilateral communication, dialogue-based communication, and others have been institutionalized so that mastering communication skill in the science-technology-society interface has become a basic literacy for bureaucrats in the governmental sector and scientists and engineers in the academic sector. Thus, the “communication turn” indicates the other side of the “policy turn” in the third wave of STS. This session challenges this taken for granted assumption by shedding reflective light afresh on our “insensibility” in facing and forgetting extreme events and disasters. The session focuses on the mismatch between agents concerned in the citizen sector and stakeholders in the governmental, industrial, and academic sectors in facing extreme events—a mismatch that often leads to incommensurable communication. Particular attention is paid to inequality in the distribution of disaster effects. This inequality is too often aggravated by the seemingly effective functioning of bureaucratic and expert communication at one level, masking unintended and collective consequences due to the uncertainties and complexities of extreme events. Disaster investigations and post-disaster “recovery” actions of the state are sites where the process is often most visible. All kinds of extreme events are welcome for consideration in this session, including natural and man-made disasters. Critical comparative analysis of insensibility in facing these heterogeneous extreme events and in forgetting them will enable us to elucidate the blind spots of the “communication turn” and the possible ways to go beyond them for better and sensible relationships between democracy, expertise, and policy.

Participants:

The Resilience Machine: Global Disaster Research and Policy since the 1990s Scott Knowles

The emergence of a global “resilience paradigm” in the early 1990s signaled a conceptual closure around the notion that human-built systems can be made to survive, even thrive, in the midst of disaster. Taking a systems approach, with strong emphasis on remote sensing, multivariate computer modeling, and centralized command and control, the prophets of resilience have swept the conceptual field from the halls of the United Nations to the offices of multi-national corporations. Despite the evolutionary background of “resilience” as an ecological concept—today the term is alive with promise as a philosophy of “sensing,” a means of intuiting the weaknesses in a system, and addressing those weaknesses before a disaster strikes. The resilience machine, in this mode of action, is ready to be switched on, and the dials tended by a cadre of technical experts trained in civil engineering, computer science, economics, supply chain management, and military logistics. Predictably, disaster experts who focus on human behavior in disaster have crafted a counter-paradigm, one that relies much more on community-level actors, levels of health care access, historical patterns, culture, and inherited vulnerabilities that reveal struggles over power. Critics of the “resilience machine” also rely upon critique of structural incapacities—the broken communication links among communities, experts, and government—that allow for predictable mistakes in land use and industrial development to create risks and disasters over and over again. This critique, or
what sociologist Miwao Matsumoto calls a “structural disaster” approach, is the inverse of the resilience paradigm—it calls into question the ability of a technical systems approach to render us safe from disaster. This paper takes a close look at the “resilience paradigm”—and the battles over its methods and outcomes—in multiple sites, including Japan, Singapore, Germany, and the United States. The paper locates and analyzes the debate over resilience in disaster research centers and traces it into government emergency/disaster management agencies.

What Went Wrong? Investigating the Sewol as a Structural Disaster in South Korea Chihyang Jeon, KAIST; Sangeun Park, People’s Solidarity for Social Progress, South Korea

Soon after the sinking of the South Korean ferry Sewol in April 2014 that took away 304 lives, there emerged a strong demand for a special commission to investigate the disaster. The Special Investigation Commission on 4/16 Sewol Ferry Disaster was tasked with, among other things, finding out “structural causes” of the disaster. Although it was generally agreed that the ferry’s sinking and the failure of rescue had structural, rather than simply technical, problems, some basic questions remained undiscussed during the ill-fated existence of the Sewol Commission: What would a structural account of disaster look like? What kind of knowledge is disaster investigation supposed to produce? What are the proper methods to conduct such an investigation? By interviewing the Commission staff and examining documents, we will argue that the epistemological as well as organizational limitations inherent in the Commission’s design made it hard to understand the Sewol as a “structural disaster.” Without internal consensus about how to frame disaster narratives and under severe pressure from opposing political forces, the Sewol Commission followed a model of investigation that had been established in Korea for the commission on “suspicious deaths”—the unsolved deaths for which the Korean state of the late twentieth century had been suspected of being responsible. While this earlier commission did important work for revealing truth behind the state-inflicted killings, their mode of operation and knowledge-making was not suitable for dealing with a structural disaster that involved technical systems, multiple organizations, and a complex chain of events between them.

Structural issue of Japanese science communication: an analysis of two cases of stem cell hype and the 3.11 extreme situation. Ryuma Shinteha, Seijo University; Mikihto Tanaka, Waseda University

In this paper, we examine structural issues by analyzing two cases of science communication in the extreme and the hype case. The first case is the East Japan Great Earthquake; hereafter we would like to call the triple disasters as “the 3.11”. We examined communication issues of this extreme situation and found that there are structural disasters which had existed before the 3.11 chronically and this situation has not been changed yet. In addition to the 3.11 case study, we would like to point out that political failure of science communication from the case of stem cell science (SCR) and regenerative medicine (RM). From the large-scale questionnaire for 2160 public respondents and 1115 SCR researchers, we found that there is the huge gap of attitudes and interests toward communication. Although this SCR and RM is not an extreme case, we have to emphasize that this gap has been generated from the daily context and reinforced by “communication turn” of science and technology policies over fifteen years. In other words, structural issues of science communication have generated and sustained from the normal situation, and the failure of them appeared at the extreme situation.

The Problem of Vulnerability in Weather Disaster Communication Jennifer J Henderson, Virginia Tech

The United States weather warning system has its roots in the Palm Sunday tornado outbreak on April 11-12, 1965. During this two-day period, forty-seven tornadoes touched down across parts of the upper Midwest killing 271 people and injured a thousand others. In a post-disaster survey, the U. S. Weather Bureau (now the National Weather Service) noted the successful accuracy of predictions and raised questions about communication issues across multiple sociotechnical networks—teletypewriters, radars, and televisions. More importantly, the report highlighted the need for systematic and widespread preparedness efforts by local communities to ensure the public remains “alert and active” in the face of weather threats. Since 1965, many National Weather Service post-disaster reports highlight similar issues framed around the problem of communication with and education of the public. Over the past decade, however, post-disaster assessments and policy initiatives, such as Weather Ready Nation, the National Weather Service’s current strategic plan, have increasingly begun to draw attention to particular communication challenges related to populations deemed vulnerable. Just what is meant by vulnerable and which communication strategies (if any) might be used to reach these communities is often unclear. In these efforts, forecasters turn to social scientists to provide guidance. Yet even within this community of experts, notions of vulnerability resist efforts of clear articulation. Vulnerability is both dynamic and fixed, categorical and illusive. Just what does vulnerability mean? This presentation draws on focus groups and interviews conducted after recent weather disasters with groups traditionally considered vulnerable by social scientists in the hazards community. Based on my participation as part of a social science research group and an analysis of the transcripts, I reveal issues with a priori classifications of vulnerability used to identify populations of risk and their communication challenges, as well as the problematization of vulnerable groups themselves.

Institutionalized Insensitivity to “Structural Disaster” Miwao Matsumoto, The University of Tokyo

Extreme events have long been placed outside the frameworks of description and analysis in sociology and social sciences in their attempts to explore risk involving social decision-making under uncertainty. However, when extreme events actually happen and, particularly, their damages are suspected to be incurred and amplified by social factors in addition to and/or in combination with natural disasters, relevant frameworks to discern and specify the social factors should be searched afresh. This paper draws the novel sociological implications of the concept, “structural disaster”, for investigating extreme events in the nature-artefacts-society interface. In particular, beyond serious and urgent questions regarding recovery and resilience in the post-Fukushima situation, the paper investigates subtle and important sociological implications that have not been told and are difficult to reveal without devising a new narrative that differs from those ordinarily used in the sociology of risk and that of science and technology. In-depth case analyses of situated action coupled with far-reaching conceptual reasoning are employed to reveal “institutionalized” insensitivity to “structural disaster”. Insensitivity might contribute to the peace of mind when we face extreme events unexpectedly, but will make it difficult to avoid devastation in the situation following the events. To break through the difficulty, the paper proposes a multiple-assumptions approach to communication between expertise and localized knowledge, the approach which will open up sufficiently extensive policy options in the public sphere based on a more realistic assumption such that there is hardly a pre-established harmony between expertise, policy, and democracy.
engaging with the concept of “technoscience,” scholars of critical, feminist, and crip disability studies often build on the foundational claims of traditional disability studies that natural and built environments are constructed rather than given, offering a critical perspective on the ways science and technology shape the expression, enactment, or elimination of disability, impairment, and illness. As a growing number of scholars are engaging with the emergent field of crip and feminist technoscience studies, we seek presentations that map some of the central nodes of the field of crip technoscience. We foreground crip theory as that which marks disability as a desirable and generative social, political, and material phenomenon, countering normative expectations for embodiments, behaviors, and ontological epistemologies. Through crip theory, we emphasize the mobilization of difference and embodiment, and we seek to engage rather than eschew technoscience, politicizing the relationships, activism, and products of technoscientific practices. In this panel we invite papers that theorize the following: how does crip technoscience highlight the ways that disability, impairment, chronic conditions, illness, madness, Deafness, neurodiversity (among other crip ways of being) shape our practices, ontologies, and epistemologies?

Participants:
Crip Technoscience Manifesto
Aimi Hamraie, Vanderbilt University; Kelly Fritsch, University of Toronto
This presentation braids two provocative concepts: “technoscience,” or the entanglement of knowing and making and “crip,” or the critical disability position against taken-for-granted normalcy. While STS scholars have engaged with the concept of technoscience to show the dynamic relations between knowing and making, few have considered the role that disability plays in histories of technoscience. Historical, sociological, and ethical scholarship on technoscience reveals tropes of disability as deviance, lack, or excess that must be avoided or eliminated, yet often takes for granted the uncomplicated “cyborg” status of the disabled body, cast as a smooth human-machine interaction. As an alternative, this presentation offers a manifesto for “crip technoscience” as a critical project, which unsettles imperatives toward normalcy and enabled knowers. We argue that crip technoscience offers more critical engagements with disability in STS. Crip technoscience challenges the presumption that valuable scientific knowing and technological change proceed from neutral, non-disabled bodyminds. Instead, we offer crip technoscience as a project premised upon interdependence, iterative design, user-expertise, and scholar-activism. We will demonstrate crip technoscience in action by weaving accessibility practices into our presentation, offering opportunities for audience interaction with technologies, images, and ways of being embodied within the presentation space.

A Care for Being More (Cap)-Able
Cynthia Bennett, University of Washington; Alex S Taylor, Microsoft Research
In this paper, we begin with Ingunn Moser’s and Maria Puig de la Bellacasa’s generative notions of care and use them to expand how we understand capability. Drawing on fieldwork with blind and vision impaired people, we turn our attention to a materially enacted, unfolding ‘sense-ability’. This is a sensing that puts (cap)ability and care together, that understands ‘seeing-in-the-world’ as a practical affair that is, at once, knowing, effecting and affecting with others (humans or otherwise). Thus, we show not only that care can contest an ‘instrumentalism’ in forms of knowing and doing—by ‘re-affecting objectified worlds’ (Puig de la Bellacasa, 2011: 98)—but also give a greater clarity to how care can be, in practice, entangled in practice. This sense-ability seeks to be active, enlivening how we become capable; it is figured to be worked with, not finite and dictated by assumed bodily limits, but open to becoming-with and becoming-more. Borrowing from Vinciane Despret, this sense-ability is “to gain a body that does more things, that feels other events, and that is more and more able.” (2004: 120). Despret, V. (2004). The Body We Care For: Figures of Anthropo-zoo-genesis. Body & Society, 10(2-3), 111–134. Moser, I. (2011). Dementia and the Limits to Life. ST&HV, 36(5), 704–722. Puig de la Bellacasa, M. (2011). Matters of Care in Technoscience. Social Studies of Science, 41(1), 85–106.

Deaf Gain and Technoscience
Kristoffer Whitney, Rochester Institute of Technology
Taking as its starting point Bauman and Murray’s notion of “Deaf Gain” (a decontextualized and uncountered perspective of “hearing loss”) as a “reframing of deaf as a form of sensory and cognitive diversity that has the potential to contribute to the greater good of humanity,” this paper merges this understanding of Deafness with Haraway’s “situated knowledges” and feminist standpoint theory to ask what contributions to technoscience and science education might be made by incorporating the perspective of Deaf/HH individuals in the sciences. The primary empirical material for this paper is an assessment of the Rochester Bridges to the Doctorate program. An NIH-funded collaboration hosted at the National Technical Institute for the Deaf, this program “aims to increase the readiness of eligible Deaf and Hard of Hearing students who plan to apply to a doctoral level program in a behavioral or biomedical science discipline.” Taking the notion of Deaf Gain seriously, this paper asks not only how Deaf/HH individuals might be made ready for science, but how science might be made ready—and in the process, better—for and by students and scientists who are Deaf. Such a move helps us expand beyond the “[itself important] question of ‘access’ to technoscience and education for the Deaf/HH and other disabilities’ questions around their contributions to technoscience and education. It also adds to the diversity of standpoints in STS, reflexively asking us to think about how both technoscience and the analysis thereof might benefit from the visual and kinesthetic perspective provided by Deaf Gain.

Queer Feminist Speculations on the Transnational and Participatory Governance of Mitochondrial Replacement Techniques
Jacquelyne Luce, Mount Holyoke College
Mitochondrial replacement techniques are represented as assisted reproduction technologies by some and gene therapy by others. The techniques generate an embryo with mitochondrial and nuclear DNA from different individuals, with the aim that the embryo will not be affected by the mitochondrial DNA mutation that the intended parent carries. Mainstream news coverage refers to the techniques as “three-parent IVF”, rendering a focus on novel forms of kinship yet invoking the image of now familiar IVF technology. Drawing on ethnographic fieldwork carried out during the summers of 2015 and 2016 in Germany, a site of stringent prohibitions of a number of reproductive and genetic technologies, I explore the multiple threads along which people with mitochondrial disease, parents of children with mitochondrial disease, and clinician researchers specializing in either mitochondrial or reproductive medicine engaged the possibilities of mitochondrial replacement techniques. What meanings do these techniques have for people living in a country in which it is anticipated that they would never be allowed? How do we think about the local contexts of governing medical and reproductive technologies in an era of increasing medical and scientific mobilities? This paper contributes queer feminist analyses to STS literature on global and participatory governance. My analysis addresses the decentering of mitochondrial replacement techniques during the fieldwork by myself and participants and the emergence of key questions concerning coalition building amongst rare disease patient and scientific communities and the competing parameter’s by which a disorder’s severity, and related access to a technology, might be assessed.

Difference in the World of Heart Cyborgs, Material Practices of Passing
Nelly Ouadhoorn, University Twente
Recently, the implantation of pacemakers and defibrillators has developed into a widespread practice, particularly in economically developed industrialized societies. But which bodies are at stake? Although the first implants were inserted in elderly, white men, and men are still the majority of its users’, women and children receive these devices as well. However, technologies designed for male bodies may not easily ‘fit’ other bodies. The feminist question of ‘Do artefacts have gender?’
(Berg and Lie 1993) is thus still relevant for medical implants as well. Inspired by feminist studies on passing and identity this paper aims to unravel how gender and age-related body aesthetics and dimensions inscribed in internal heart devices produce visibly marked bodies that require body management techniques of women and children to pass as ‘normal.’ Based on a study of surgical procedures and everyday life practices of patients living with pacemakers and ICDs, I suggest it is important to broaden theories of passing to include the work of medical professionals aimed at producing hybrid bodies that can more easily pass as unmarked. The paper aims to contribute to recent scholarship in feminist STS and disability studies by emphasizing the importance of what I call material practices of passing, which involve both surgical procedures to pass the bodies of children and women into heart cyborgs and body management techniques to pass as ‘normal’.

Chair:  
Kelly Fritsch, University of Toronto


Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon F

This session looks at the making and unmaking of places as loci for the production and articulation of scientific knowledge. Papers investigate the coherence, materiality and significance of places invested in scientific discourses, and how places can be understood in the context of an economy of scientific knowledge. They ask how places can be perceived, understood and produced as coherent entities capable of making or carrying meaning. The first paper looks at space-making in the postcolonial context through the production and circulation of maps. It asks about secrecy and the making of place in the postcolonial context. At another level, the "field hospital," in the second paper, acquires meaning, achieved and contested, from its connection to a medical discourse. While the field hospital is produced materially through the confluence of materials (from gauze to medications, and from curtains to keep patients' privacy to white coats to mark doctors) and expertise (doctors, nurses, volunteer security, ad-hoc ambulances, etc), it is also produced discursively at the intersection of political resistance and discourses on human rights and medical neutrality. The investment of the Hammam, in the third paper, with scientific worth allows for its recreation as salvaged object projected in the contemporary at the intersection of Orientalism, gender and sexuality. The fourth paper looks at the Pan-America Highway as a font of the technological sublime. Created through the interplay of political order and a global economy of technoscientific knowledge, it stood as a symbol of modernization and development in the postcolonial context. At another level, the fifth paper looks at how the social lives of IVF and PGD technologies condition particular characters for spaces and animate certain movements across boundaries.

Participants:

The Field Hospitals of Egypt's Arab Spring: Practicing Medicine in Political Tumult Soha Bayouni, Harvard University - History of Science

Field hospitals are, by design, transient sites for the delivery of medical care in volatile, and often violent, situations. The field hospital is thus a site where some aspects of medical practice, that have often captured historians of medicine and STS scholars, are heightened and amplified, from the nature of the clinical encounter to the ethics of care delivery. Relying on fieldwork among medics who erected and staffed the field hospitals that tended to injured protesters during the Egyptian uprising of 2011, this paper will investigate the field hospital as a locus for studying the delivery of medicine in a tumultuous political and social context. The paper will focus on the field hospital as a site that afforded physicians spatially and temporally privileged access to injuries, bodily suffering and loss of life, and thus as a site where medics witnessed first-hand the violence perpetrated by the State against its own citizens. It served as a site of "political conversion" for physicians who were prior to that encounter skeptical towards the value of radical political change.

It was a site that, despite its attempts to stay politically neutral, ended up politicizing many of its inhabitants. It is by serving in the hospital that doctors were able to document state violence and lend their "expert testimonies" to discredit the State's narrative about the political events and its denial of violence. It is a site where appeals to "medical neutrality" were made by doctors, disregarded by the State, and contested by protesters.

Cross-Border Reproductive Travel and the Remaking of Northern Cyprus as Turkey’s Ethical Grey Zone Burcu Mutlu

Northern Cyprus has been at the center of media attention in Turkey, with its casinos and nightclubs featuring in headlining stories of "tube-baby [IVF]" and “abortion tourism” from Turkey to the island. This paper focuses on the cross-border travels of Turkish citizens seeking abortion and In Vitro Fertilization services (particularly using gamete donation and nontherapeutic sex selection) in the neighboring, Turkish-speaking part of Cyprus, a Mediterranean island politically divided since 1974 between Greek-Cypriots in the south and Turkish-Cypriots in the north. Bringing a transnational dimension to the study of national reproductive politics, my research ethnographically elaborates the essential yet largely invisible role of Northern Cyprus in the reproductive biopolitics of contemporary Turkey. Since 2000s, under the fifteen-year rule of the conservative Justice and Development Party that embraces Sunni Islamic ethics and principles, Turkey has witnessed major policy changes and biopolitical transformations that mark a contemporary (re)turn to pronatalism. These changes, I suggest, rely on political, biomedical and commercial connections that are embedded in the paternalistic “semi-colonial” relationship between the two countries. Drawing on interviews with medical experts from Turkish and Northern Cypriot IVF clinics and critical reading of Turkish and Northern Cypriot media representations of abortion tourism, this paper asks to what extent medical experts engaged in the il/licit cross-border travel for medical services reproduce and/or contest the (re)making of Northern Cyprus symbolically and materially as Turkey’s ethical grey zone.

La Panamericana: Contested modernities and technological landscapes in the Americas Juana Becerra

During the Fifth International Conference of the Pan American States in 1923 at Santiago the Chile, members of the Pan-American Union agreed on the construction of the Pan-American Highway. A technological landscape composed of 30,000 kilometers of asphalt roads connecting Prudhoe Bay, Alaska and Tierra de Fuego, Argentina, the Pan-American Highway was intended to symbolize hemispheric unity and to be a material representation of a distinctive “New World” modernity. At the same time, the Pan-American Highway was intended to facilitate mobility, making the countries south of the Rio Grande more easily accessible to U.S. military and commercial interests. For Central and Latin American nation-states, the Highway represented an opportunity to gain control over communication technologies, which had been until then owned and administrated by British railway companies and the United Fruit Company. The Pan-American Highway could also change the landscape. Through the construction of new roads, lands were transformed into agriculturally profitable territory with newly acquired political significance, thereby extending the power of the state and relocating the rural population. This project seeks to investigate the process of negotiation through which a multiplicity of meanings were ascribed to this vast technological landscape. As a collaborative project, involving engineers, workers, materials, and resources coming from fourteen different countries, the Pan-American Highway poses questions about how diverse highway systems are connected and presented as a novel and coherent object. Following the process through which the geography of the Americas was redrawn, this project explores the ways in which a technology can be simultaneously a site for international collaboration and a site where (post)colonial power relations are both re-inscribed and subverted.

Disappearing Spaces: Mapping Egypt’s Desert across the
Colonial Divide 

Chloe Bordewich, Harvard University
In October 2016, Egyptian human rights lawyer Khaled Ali made headlines when he presented a high court with six historical maps of the islands Tiran and Sanafir. The maps, deployed as evidence against the Egyptian government in a high-profile territorial dispute, came from Berlin. The originals had conspicuously disappeared from Egypt. For the postcolonial Egyptian state, maps brim with dangerous secrets. In this paper, I employ a series of maps produced from the turn of the 20th century through the mid-2000s to discuss the logic of secrecy and investigate how the very maps that define the identity of the postcolonial state cannot be found within it. Drawing on the papers of the Egyptian Survey Authority and colonial Frontier Districts Administration, as well as interviews with contemporary cartographers and government scientists, I pursue the history of mapping one of Egypt’s most sensitive regions: the five oases of the vast Western Desert. How was knowledge about the Western Desert oases made and how, subsequently, was that knowledge and the maps that contained it made to disappear? I question the relationship between colonial cartographic projects and postcolonial secrecy, considering both cartographic knowledge and practices as well as the material maps. As colonial/postcolonial scientific expertise rendered the desert peripheries visible, the limits of state control over them became more apparent. This anxiety was projected onto the object of the map, blurring the line between space and its representations. Today, the forced disappearance of cartographic knowledge and of maps themselves has displaced the site of permissible knowledge consumption: one can consult maps of the oases, produced by the Egyptian state, only in foreign libraries.

The Pleasures of Healing: Sex, Medicine and Orientalism in Contemporary Bathhouses in the United States

Shireen Hamza, Harvard University - History of Science

Fourth Draft: The hammām appears differently in law and medicine in the medieval Islamicate world. Legal scholars were anxious that the hammām incited (hetero- and homo-)sexual transgression. Physicians wrote of it as a tool to heat, cool, moisten or dry the body, without moral reservations. In the nineteenth and twentieth centuries, institutions called hammams/Turkish baths spread to parts of the West. The appearance of Turkish Bath in Europe introduced new cultures of public bathing that were connected to narratives of orientalism and exoticization. Eroticized depictions of the hammām also spread as it epitomized European anxieties about “Oriental” homosociality. In their contemporary incarnation, bathhouses, frequently called Turkish baths, are produced at the intersection of medical knowledge, Orientalist imaginations and the interplay of the private and public in the construction of variable sexualities. At one level, Turkish bathhouses invoke a medical narrative layered around modern(ist), holistic and traditional-recalled practices. At another level, these institutions are also reproducing and redepolying the Orientalist image of the hammām. Finally, Hammams are produced across narrative of sexuality and changing meaning of the public and private. This paper will investigate how the hammām is produced as a place endowed with medical and scientific meaning that is connected to narratives about Orientalism, in the postcolonial context, and the making of sexuality through physical spaces.

Chair: 
Soha Bayoumi, Harvard University - History of Science
Discussant: 
Heather Paxson, Massachusetts Institute Of Technology

The Sensibilities of Games: Bodies, Mechanisms, Platforms

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon G

This panel examines the technological underpinnings of game sensations and sensibilities, showing how changes in the material reconfigurations of game hardware and software produce new sensate and situated experiences of game play. As a medium uniquely operating at the threshold of computational affordances, video games offer one of digital culture’s most compelling cases for exploring the relations of human-technical networks. Building on work by scholars such as T. L. Taylor, Henry Lowood, Timothy Lenoir, Alex Galloway, and Claus Pias, this panel will bring game studies and media studies into circulation with long standing conversations in STS around human-machine communication, feminist materialism, and science, technology, and sport. With case studies drawn from the recent and not-so-recent history of game development and design, the panels emphasize the hidden forms of labor necessary for games to concretize into conventional objects. In light of these examples, games are simultaneously sites for the contestation of hegemonic sensory hierarchies (Parisi), for organizing and routinizing labor practices (Nooney), for negotiating the values and parameters of simulated touch (Wing), and for producing new modes of visual knowledge (Gaboury). Ultimately the panel asks about the intermingling of humans and nonhumans in design processes that undergird the infrastructures that produce game sensibilities.

Participants:

Touching You, Touching Me: Getting the Physics Right in EA FIFA
Carlin Wing, Scripps College

In 2014 Scientific American announced that EA FIFA had finally gotten “the physics right.” After two decades of players complaining about “floaty” balls, software engineers and animators for the world’s most popular and profitable sports videogame finally took a close look at the projectile physics code and discovered a lurking error in the drag coefficient, the simulation of air resistance. Fixing this error produced a ball that: “at long last, could sail smartly through the air” (Chiaet 2013). The new feature was dubbed “real ball physics.” Karen Barad argues that the entire history of physics “can be understood as a struggle to articulate what touch entails” (Barad 2012). FIFA’s tagline commands players to “feel the game.” This talk addresses the matter and meaning of touch in FIFA by sketching the history of the game’s AI and physics engines, controller technology, and animation and then locating this history in relation to the long and diverse history of bounce programs in computing—a history that begins with the World War II MIT Extremes Forward to spectacular simulations such as FIFA’s on the one hand and to smaller but pervasive effects like Apple’s bounce scroll on the other. Attending to the fine-tuning of the ball’s interaction both with players and with the elements of the programmed environment opens up a conversation about how the technical and cultural conditions of good and bad “game feel” demonstrate the ways different natural, social, and economic orders are continually played out through touch.

Divide and Conquer: Game Engines and the Division of Labor in Game Development
Laine Nooney, New York University

In 1984, Sierra On-Line released their landmark adventure game King’s Quest, the first graphical adventure game to produce the effect of three-dimensional depth. Underpinning this technological feat was a suite of software termed the Adventure Game Interpreter, or AGI, an in-house development system that became Sierra’s platform standard for the next decade—one of the earliest instances of what we would today term a game engine. Game engines, as Henry Lowood has put it, are a structure which “separates execution of core functionality by the game engine from the creative assets that define the play space or ‘content’ of a specific game title” (2016). In essence, game engines are the scaffolding that permit the rendering of immersive experiences and player sensations. But game engines also provide us a vantage on the very labor they make invisible. As I will illustrate with Sierra’s AGI, early developments in game engines provide the historical precedent and technological conditions for the contemporary labor politics of the game industry. An engine’s division between “core functionality” and “content” is the basis for an intricate division of labor within game development. By compartmentalizing and economizing game development’s many content components—such as audio, graphics, animation, and mechanical routines—the game engine transforms development into something like a factory floor of numerous specialized tasks. Most significantly, this division of labor, which can be traced in AGI through archival materials and programmer oral histories,
sustains as the dominant organization of labor in the game industry today.

Making Tangible: Rumble and the Semiotic Regime of Gamic Touch
David Parisi, College of Charleston

Ivan Sutherland’s paradigm-defining address on “The Ultimate Display” in 1965 suggested that designers build computational interfaces that “serve as many senses as possible.” Early research into the engineering of virtual worlds focused instead on engineering increasingly accurate mechanisms for stimulating the sense of sight, with government and corporate investments in the discipline of Computer Graphics driving technological development (Lenoir, 2000). The video game industry followed suit, as new game platforms were defined by their ability to display images with increasing precision and realism. Games, consequently, lacked a way to render data for the sense of touch. However, the debut of ‘rumble’ feedback in 1997—featured in controllers for both Nintendo’s N64 and Sony’s PlayStation consoles—layered touch sensations onto game worlds, allowing players to feel onscreen events via carefully-modulated vibrations. Though it lacked the fidelity of higher-end force feedback mechanisms, rumble’s simplicity made it a low-cost solution to the problem of “making graphics physically tangible” (Salisbury, 1999). Twenty years later, rumble remains the dominant mode of making game worlds tangible, deployed across successive generations of game consoles. Its stabilization has allowed for the concretization of “best practices” in designing rumble sensations, while also demanding that players acquire a practiced refinement to the coded messages transmitted by the rumble mechanism. This paper suggests that rumble involves the cultivation and acquisition of tactile signification systems, with the language of gamic touch functioning as a “semiotic regime” (Deleuze and Guattari, 1987) that serves as countervailing force to the hegemonic visibility of game interfaces.

Chair: David Parisi, College of Charleston

107. Feelings and Doubt in Technoscience
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon H

“Post-truth” was the Oxford Dictionary’s word of the year in 2016. This neologism refers to how appeals to emotion—and even deliberate deception—influence the ignorance of, or rejection of facts. Feelings, and subjectivities more generally, have long been a focus of STS work. STS scholars have sought to mete out the complex relationships between positonality, affects, and networks that lead to knowledge-making claims and their role in truth-regimes. This panel seeks to address our contemporary moment’s crises of “truth” in critical retrospective: to use the methodological tools of STS to offer a nuanced examination of the longstanding, complex relationships between feelings and doubts about technoscience historically and today. This panel invites papers that speak to a range of topics including: feelings of morality and postcolonialism (see Schiebinger 2004); the feelings that engender the spread of ignorance (see Proctor 2016); gender, feelings, and science (Harding 1991; Keller 1983); entanglements of affects and biology (Wilson, 2015); commercial industries and doubt about scientific consensus (Oreskes and Conway 2011); and gender and attachments to personal beliefs, such as vaccinations (see Reich 2014). This panel will facilitate inter-generational conversations around an important topic harmonized with the theme of 4S in 2017. “Feelings and Doubt in Technoscience” will interrogate thoughtfully and reflectively the conference’s call to bring attention to “(in)sensibilities of contemporary technoscience,” by addressing the technological and cultural means by which feelings about technoscience lead to it being ridiculed as nonsense, marshaled to incense, and/or make sense.

Participants:
Schadenfreude as an inscription device for data science as technoscience (Larson 1987). Schadenfreude serves to uphold the mystique of data science as an expert field. My analysis focuses on discourse about technoscience as critical to its power. I move toward this line of thinking by analyzing a selection of articles, blogs, and comments about three reports of data scientists making predictions about individual’s identities through analysis of their data traces. The cases are: “Project Gaydar” at MIT predicting “gayness” (2009) based on social media network analysis, consumer shopping center Target predicting a teen’s pregnancy (Duhigg 2012), and journalists demanding justice for commerce companies using customer data to differently price their products. The responses to these cases, I contend, demonstrate a pervasive pleasure in the ability of data scientists to make predictions. What function does this pleasure serve in the integrated circuit of knowledge-production? Rather than suggesting the predictions are “accurate” or “wrong,” my paper situates data science as a socio-technical accomplishment that is achieved through social and cultural processes, and I argue that schadenfreude has been a part of this. By sharing in shock, resignation, and perverse pleasure about data science as an objective science that can “know” the essence of people, I argue the responses reinforce a trust in statistical analysis as an abstracted, technical, and apolitical tool. To draw out this explorative interpretation, my paper brings together social theories of the circularity of emotions (Ahmed 2004; Berlant 2010) in relation to actor-network-theory, where technoscience is achieved through inscription devices working at a distance.

Deconstruction and Repair Dana Simmons, University Of California Riverside

In light of our current political - existential – situation, it seems appropriate to ask what we are doing science and technology scholars and what are the right tools for the job. We are faced with a program of institutional, discursive and vital deconstruction. Steve Bannon has called for the “deconstruction of the administrative state.” This critique of the ‘administrative state’ represents a somewhat standard critique of modernity and the rise of expert governance, in opposition to the direct popular will. This deconstructive program clearly extends well beyond that, to language and to life itself, human and otherwise. Bannon called for deconstruction in the service of the life of the nation: “we’re a nation with an economy [not globalized but national]…, we’re a nation with a culture, and a reason for being.” Culture and being are the ultimate targets of this deconstructive method. It is not entirely clear if Bannon is using the term deconstruction in a Derridean sense, though he could have used a more classical term - dismantle, defund, neutralize, destroy. Bannon’s wording and wording call for an STS analysis. This paper examines the affective products of administrative, cultural and existential deconstruction. I work through a deconstruction of the political event. I consider the possibilities for a reparative scholarship. The inability to locate what is happening as an event is causing a great deal of anxiety. Where is the event? Who or what is the subject and who the object? What is its temporal location? What is happening now both is and is not different from what happened before or will happen in the future. It seems to me now that what we know as an event happens afterward, after it’s already too late. We’re always too late. The effects of the administration’s activity feel postmodem, in Frederic Jameson’s sense: its subject, its content, certainly its truth value, is less important than its varying intensities. I compare this feeling of intensities to travel: a heightened awareness, a sensory keenness, sensitivity to differences, to patterns, loss of habits and automatisms, loss of a continuous or unitary map of what is going on. STS at its best opens up a poetics - because we need tools for formal intervention at the deepest levels. We’re not getting anywhere by fact checking. I conclude with possibilities of a reparative STS practice. To expose what is “really behind” an event like Trump, to reveal its historical dark side, seems insufficient and unsatisfying. It does not seem enough to show that this country has sexist, racist, imperialist roots. As Sedgwick suggests, a paranoid stance often forecloses more than it opens.
Paranoid people are never surprised; it’s always as bad as they had expected. Sedgwick calls for a turn from ‘paranoid to reparative readings’. Instead of a paranoid history this history is an attempt at a reparative history.

Sensibilities of the Flesh: HPV Vaccination, Knowledge-Making and Protection in Barbados

Nicole Charles, University of Toronto

To which senses do we refer when we speak of “coming to one’s senses”? What is the connection between sensibility and protection? How does suspicion inhere in, constitute, and/or impede protection? This paper takes up these questions to analyze the multiple forms of sensibility and protection expressed to me by Barbadian parents suspicious of the human papillomavirus (HPV) vaccine, and by Barbadian medical professionals in their respective pursuits to negotiate and promote the vaccine. Beyond conceiving of sensibility as rationality, and senses as limited to the five senses of touch, taste, sight, hearing, and smell, I argue for an understanding of sensibility as an instinctual feeling in and through the body. Suspicion toward the HPV vaccine, I argue, ought to be understood as informed not only by the postcolonial state’s contemporary immersion in increasingly technological global (bio)political assemblages, but by a shifting and cumulative historical set of practices of violence, surveillance, policing and control of black women’s sexuality, their health and reproduction in the name of capital accumulation – practices which Afro-Barbadian mothers sense, and respond to via suspicion. Taking up women of colour, transnational feminist and feminist phenomenologist theories of enshlement, embodiment and futurity, I argue for parents’ experience of suspicion as sensed in and through the body, the gut and the flesh, which in turn constitute a knowledge of protection and refusal that might not only be thought of as form of resistance, but an embodied and palimpsestic response to histories of colonial and postcolonial violence. This work engages STS debates on scientific knowledge-making and citizen-society knowledges of health, while further exploring how affects of sensibility and suspicion attach themselves to sites of science, biomedicine, and new biotechnologies. In so doing, this work expands boundaries of what we conceive of as both sensible and ethical societal responses to public health threats in the context of bioeconomies, racialized and (post)colonial biopolitics and new technologies.

Sound of Mind: The Automation of Psychiatric Listening and Assessment

Beth Semel, Massachusetts Institute of Technology (MIT)

This talk investigates emerging, artificial intelligence-enabled technologies in the United States designed to help mental health care practitioners make diagnoses or predict when a patient will have a pathological episode by analyzing non-semantic, acoustic features of speech (pitch, volume, breathiness, etc.). The computer scientists, neuroscientists and psychologists working to develop these technologies are driven by a shared observation: contemporary psychiatric diagnosis is constrained by a person’s ability to know, describe or be willing to disclose inner psychological states in conversation with a clinician, or by a clinician’s interpretive skills. These listening technologies, the researchers contend, will transform patient talk in clinical assessment contexts from socially significant narrative to (neuro)biologically significant sound in a way that circumvents a speaker’s attempt at either self-expression or concealment. Drawing from ethnographic fieldwork with research teams building voice analysis technologies for mental health applications and searching for “vocal biomarkers” of mental illness, I explore how efforts to test and refine these technologies, as well as the hopes and anxieties that surrounds them, expose and reconfigure fundamental tensions within Euro-American views about the relationship between speaking, agency, truth-making, and responsibility. I think through slippages between the forms of predictive psychiatry some of these technologies could enable and the recent turn toward predictive policing in the U.S., both of which pivot on the automated, passive capture of data that a person inadvertently conveys. Finally, I consider how the research teams’ findings destabilize conventional knowledge among North American mental health practitioners and researchers about what pathology “sounds” like.

The Ethics of Access in a Post-Fact Environment: Institutional Circuity and Informational Value

Melanie Feinberg, University of North Carolina at Chapel Hill

At the January, 2017 Women’s March in Raleigh, NC, a group of librarians proclaimed their opposition to the Trump administration with “Librarians for Facts” signs. One way of understanding their signs is to endorse librarianship as a profession that, in alignment with philosopher Luciano Floridi, equates information value with falsifiability. But there is another way of understanding the librarians’ signs. In 1995, Phil Agre proposed that, as automatic searching made topic-based information access less dependent on human intermediation, librarians should focus their efforts on describing the institutional circuity in which documents come to be meaningful. In the notion of institutional circuity, Agre invokes Joanne Yates’s account of genre as social action. In such conceptions of genre, textual conventions emerge and shift in response to dynamic configurations of communities of practice. Accordingly, Agre proposes that librarians should situate the information they provide within the epistemic machinery through which facts are made, as revealed through the workings of institutional circuity. In Agre’s vision, Librarians for Facts do not disseminate truths; Librarians for Facts explain the conditions under which truths come to be accepted, revealing the ideologies that shape knowledge production. This paper reimagines Agre’s call for an ideologically attuned librarianship in the context of current politics, aligning the notion of institutional circuity with ideas of situated knowledges and located accountabilities drawn from feminist technoscience. I propose an ethics of information access informed by reenvisioning “facts” as situated processes, where informational value is based on critical understanding of evidentiary conditions.

Chairs:
Monika Sengul-Jones, University of California, San Diego
Amanda Menking, University of Washington (Information School)

Charles Luke Alan Stark, Department of Sociology, Dartmouth College

Discussant:
Charles Luke Alan Stark, Department of Sociology, Dartmouth College

108. Making Sense of Autonomous Technologies III: Futures, Possibilities, Reconstructions

Traditional (Closed) Panel 2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Berkeley

The 40th anniversary of the publication of Langdon Winner’s seminal work, Autonomous Technologies: Techincs-out-of-Control (1977), provides an opportunity to reflect both on an increasingly automated Anthropocene as well as the field of STS itself at the opening of the 21st century. In 1977, when electronic digital computers still occupied entire rooms within the citadels of the military-industrial-university complex, AI and robotics were still largely arcane avocations of a few research teams and entrepreneurs. Today, smartphones with millions of times the power of those machines reside in the pockets of billions of people around the world; robotic beasts crawl over rubble to win prizes from DARPA; and consumer automobiles are (finally) beginning to drive themselves. Forbes magazine has already named 2017 “The Year of AI,” and China is poised to outpace the US and Japan combined in total numbers of industrial robots. R&D funding for autonomous technologies is at an all-time high, as are both optimism and fear about what they promise. Meanwhile, some of the world’s leading democracies struggle to function under conditions of electronically mediated information overload. How are we making sense of these technological transformations forty years after Autonomous Technologies? And how should we be? What still applies? What has
changed? What have we learned since, and what remains insensible to us? This panel welcomes contributions on autonomous technologies, broadly construed to include historical and contemporary reflections as well as speculative and future-oriented pieces.

Participants:

When Jibo Giggles: Interrogating the Assumptions of Emotion in Speech Research Sarah Bell, Michigan Technological University

The dream for socially intelligent autonomous robots (SIARs) is for them to interpret and reflect human emotion. As Breazeal (1999) explains, “In order to engage humans in natural social exchange, SIARs must be able to read the affective and social cues coming from our user [sic]” (p. 20). A primary modality for gauging human affect is vocal prosody—not only the pitch and tone of one’s voice, but also inflection, intensity, speech rate, and extra-linguistic vocalization (e.g., laughter). This paper examines the implications of efforts by speech processing researchers to achieve autonomous recognition of emotion from speech. By analyzing the strategies of entrants in the INTERSPEECH 2009 Emotion Challenge (Schuller et al., 2011), I discuss the assumptions about human emotions that have gone into developing the typologies and training datasets used in emotion-in-speech research. Researchers often recognize the limits of their psychological models (Koolagudi, 2012), but STS can help interrogate the social implications of promoting SIARs as understanding and exhibiting prosodic emotion. For example, Sherry Turkle (2015) is concerned about losing our ability to interact with “real people, with their unpredictable ways” (p. 7) if we choose to believe that an SIAR’s responses to us become an acceptable, or even preferable substitute for social interaction. She admonishes us to identify our vulnerabilities in order to question how best to incorporate technologies into our lives. This paper identifies some of the vulnerabilities in statistically reducing the prosodic bandwidth of the human voice in order to assign it to an emotional category. References Breazeal, C. (1999). Robot in society: Friend or appliance? In Agents99 workshop on emotion-based agent architectures, Seattle, WA. 18-26. Koolagudi, Shashidhar G., and K. Sreenivasa Rao. (2012). Emotion recognition from speech: A review. International journal of speech technology, 15 (2), 99-117. Schuller, B., Batliner, A., Steidl, S., & Seppi, D. (2011). Recognizing realistic emotions a the art and lessons learnt from the first challenge. Speech Communication, 53(9), 1062-1087. Turkle, S. (2015). Reclaiming conversation: The power of talk in a digital age. New York: Penguin.

Conversational Interfaces: Speaking with Irresponsible Black-Boxes Raül Tabarés, Fundación TECNALIA RESEARCH & INNOVATION

Conversational Interfaces are increasingly common nowadays. These artifacts were also identified as one of the 10 breakthrough technologies for 2016 by the MIT. From chatbots to virtual agents, these new smart technologies are getting so popular. Alexa, Cortana or Siri are some of the famous names that major digital players at Silicon Valley are branding. These kinds of artifacts promise us to be “the next big thing” in human-machine communications providing a more natural and smooth user experience. But at the same time, recent malfunctions and inquiries about how these systems are designed, built and embedded in everyday living have raised different uncertainties and worries about its adequacy. It remains unclear to public opinion how these machines gather, store and manage data about users and what’s more important; designers and engineers that work with these Artificial Intelligence (AI) technologies are not always aware about the internal reasoning of those machines. That leads to different doubts and interrogations about how these services are designed, built and updated. Therefore, we argue that these new innovations exemplify the redefinition of the black-box problem and they constitute new autonomous technologies that can introduce new risks in society (inequalities, marginalization, etc.). In this contribution we pay attention to recent developments of digital assistants and we critically examine how they are being introduced in society. We also stress the need for developing different tools in liaison with other stakeholders in order to establish a collective and reflexive dialogue about its development.

Evaluating Barriers to the Democratization of AI R&D Colin Garvey, RPI

In this paper, I evaluate AI R&D broadly to consider how it could be governed more democratically. I draw on Woodhouse’s framework for democratic decision-making through intelligent trial and error (ITE), a design-based approach to the governance of technological R&D that synthesizes the insights of critical technology scholars with democratic political decision theory. My initial analysis suggests the existence of considerable barriers to the democratization of AI: (1) Public deliberation is impaired by deterministic framings of AI’s developmental trajectory, which prohibits partisan disagreement and restricts discussion to a narrow set of concerns. (2) Importantly, decision making processes are largely opaque, exclude most stakeholders, and allocate authority to technical experts and business executives. (3) The rapid pace of AI R&D and subsequent rush to deploy and monetize applications mitigates against stringent initial precautions and disallows time for governance institutions and other social organizations to learn and respond. Finally, while several institutions have formed to investigate the ethics and safety of AI, these are primarily staffed by computer scientists and other technical experts, lack social scientific expertise, and have yet to provide substantial advisory assistance for those most likely to be negatively impacted by AI. Adequately addressing these issues may require significant, unprecedented changes to the R&D process itself—but I would like to believe that the pioneers at the forefront of the field are capable of social innovations in addition to technological breakthroughs.

Chair: Atsushi Aker, Remsselaer Polytechnic Institute
Discussant: Atsushi Aker, Remsselaer Polytechnic Institute

109. Professions and Professionalization

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Clarendon

Participants:

Policy and Women in Science: The Israeli Case Jamila Elnashief, Tel Aviv University

The rise of the second wave of feminism through the seventies in Europe and the United States led to the strengthening of public awareness towards Gender inequality matters, in both the public and the private sectors, leading to a demand for ‘institutional gender equality’. Hence, throughout the years, achieving gender equality, especially, in the public sphere became one of the fundamental issues in policy work in western countries, alongside legislations, aiming to ensure it. This lead to the formulation of ‘intervention policy’, which had been developing in Higher Education Institutions, as part of practices which desire to ‘fix’ the status of women in science, consequently leading to the creation of a tension between the ‘Academic Ethos’ and the ‘Gender Politics’ discourse. This study examines the underrepresentation of women in research universities in Israel, by focusing on female scientists in STEM disciplines. So, this study maps the different actors and processes held to create a discourse of ‘Policy’ to promote Women in STEM and aims to examine the rise of three Equal Opportunity policy approaches that have evolved since the 70’s in Academia: Equal Treatment, Positive Action and Gender Mainstreaming. Furthermore, this study situates the Israeli case in the global discourse of ‘Women in Science’, by comparing the development of policy trends and processes which took place in Europe and the United States. Additionally, the comparative mode of Israel to western countries aims to post the tension between the ‘Academic Ethos’ and the ‘Gender Politics’ discourse into a wider frame. Thus, as one of
the research’s hypothesis claims, the ‘intervention policy’ in Israel is an extension of ‘Europeanization’ and ‘Americanization’ processes. Regarding Methodology, this study is a synthesis of literature on policy and content analysis of: (a) Protocols of three Knesset committees (The Science and Technology Committee, The Committee on the Status of Women and Gender Equality and The Education, Culture and Sports Committee); (b) Regulation documents of four leading research institutions in Israel: The Technion, Weizmann Institute of Science, Tel Aviv University and the Hebrew University; (c) Decision papers of the MALAG (Council of Higher Education) and VATAT (Planning and Budgeting Committee); (d) Recommendation papers of committees assigned by the MALAG (Council of Higher Education).


Abstract: This paper reviewed the Chinese policy and talent programs after 1978 to reverse the historically brain drain of China. Under the current wave of reversed migration, Chinese overseas returned scientists and scholars have changed the labor structure of Chinese academia. This paper is a mixed method research which intended to explore the performances of overseas returnees compared to their domestic counterparts. We used the dataset of the 2008 National Survey of Science and Technology Personnel to do quantitative analysis and comparison on the performances of overseas returnees and local scholars on three dimensions of their academic publications, innovative patents, and national rewards in S&T. Overseas returned scientists are generally better off in academic and innovative performances, but with less recognition within the domestic scientific field. Sizable qualitative interviews showed that even within the influx of overseas returnees, the labor market is also a social and political field that the social network and Chinese talent programs would direct the flow and influence the performance of overseas returned scientists.

Can Peer Review be Objective? Misha Teplitskiy, Harvard University; James Evans, University of Chicago; konrad kording, northwestern university; daniel acuna, Syracuse University; aida raoult, Ecole Supérieur de Physique et de Chimie Industrielle

This paper elucidates why peer reviewers (1) disagree so often regarding the value of a particular scientific work and (2) favor the work of colleagues. Previous research has typically assumed that assessing a work’s technical aspects is relatively straightforward and unanimous, so when reviewers disagree, it is likely because of different tastes on non-technical aspects, such as whether the work is “significant” or “novel.” According to this view, limiting peer review to just evaluating works’ technical aspects should reduce both disagreement and favoritism – in other words, subjectivity. To test this view, we analyzed the editorial files of thousands of neuroscience manuscripts submitted in 2011-2 to the journal PLOS ONE, which evaluates manuscripts on technical competency only. We found that (1) PLOS reviewers disagree at least as often as reviewers in settings where “significance” and “novelty” are valued, and that (2) reviewers favor the work of their colleagues by a substantial margin (0.28 points on a 4-point scale). These results, observed in a peer review system designed specifically to maximize objectivity, suggest that substantive disagreements regarding technical competency (and possibly motivational or cognitive biases) are much more common than previously acknowledged, and merit shifting emphasis from eliminating subjectivity to managing it.

Chair: Misha Teplitskiy, Harvard University

110. STS after Truth: Narrative, Translation, and Advocacy
Traditional (Closed) Panel
2:00 to 3:30 pm

Sheraton Boston: Floor 3 - Commonwealth

Constructivist approaches to the historical and social study of science and technology aim at "debunking" universalizing narratives about the existence of truth and objectivity. This scholarship has attempted to make plain that claims to truth are always also claims to power, and that these power relations are worth exposing in order to make possible a more just world. STS and related disciplines are thus centrally concerned with representing the diversity and complexity of knowledge making in the world, and challenging narratives that naturalize technoscience by decoupling it from the social orders in which it is embedded. This panel gathers perspectives on the role of STS scholarship in the present political and social world in which, especially in advanced democracies, the status of truth is deteriorating. Inspired by scholarship that has attempted to theorize the production of ignorance and uncertainty (Proctor & Schiebinger 2008), this panel probes the topic further by asking the following questions: How can STS contribute to recenteralize the value of scientific truth in responsible decision-making choices, while retaining its critical outlook on contemporary and past knowledge/power relations? What is the relevance of the STS project in the face of political elites that are contemptuous of established scientific consensus and the fact-based investigation of discernible reality? We welcome multidisciplinary reflections on the use of new narratives, and on the public responsibility of STS scholars in translating expert/local knowledge, especially when working with populations most affected by climate change and elite-driven technopolitical processes.

Participants:

Truth in Question? An STS Perspective on the Current Crisis of Democracy. Davide Orsini, Mississippi State University
After the election of Donald Trump as President of the United States the New York Times launched an unprecedented campaign about the importance of truth. “The truth is more important now than ever,” recites the now famous ad inaugurated during the night of the Oscars. As it strives to accredit itself as a truth seeking institution facing the deformations of those in power, the New York Times aims at guaranteeing the possibility for open public debates based on facts. Journalists are not alone in this battle. President Trump’s attempt to close public communication channels of NASA and EPA, and the new nominations of climate change skeptics as directors of important federal agencies, have increasingly put the scientific community in alarm. Is truth in question? What is the value of truth in current democratic regimes? Is democracy moving away from evidence-based debates and policy-making? Inspired by the work of Noortje Marres (2012) and Andrew Barry (2013), this paper analyzes the status of public participation in democratic regimes invested by a “populist wave” on both sides of the Atlantic. My argument is that instead of focusing on restoring scientific truth (singular) against the rise of populism, Science and Technology Studies should contribute to strengthen public discussions on “matters of concern” (Latour 2004) through an “object-oriented” (Marres 2007) analysis of political controversies and promote more work on the democratization of technoscience for a return to political responsibility against neo-liberal technocracy.

In Defense of Bureaucracy: Heroes of the Administrative State Anna Weichselbraun, Center for International Security and Cooperation, Stanford University
From Hannah Arendt onward we have known about the capacity for bureaucracies to participate in machines of unprecedented destruction. But even backing away from this extreme the social scientific literature is rife with tales of bureaucratic indifference, inefficiency, paradoxical outcomes, and cruelty (Hartzfeld 1992, Ferguson 1994, Scott 1998). Nevertheless, the ubiquity of bureaucratic administration both in the nation-state as for corporate capitalism has led some to wonder about its curious appeal (notably, Graeber 2015). I propose that this appeal lies in a widely shared ideology about the objectivity of bureaucracy: in its Weberian capacity to be rational, impartial, and objective. Following this idea, I consider how US government bureaucracies maintain the integrity and efficacy of their mission despite attempts by lawmakers to muzzle and undermine them. By analyzing contemporary responses to political attacks by
independent government agencies such as the CIA, EPA, NASA, the National Park Service, I will work out the relative autonomy of these bureaucracies, and their strategies for knowledge production in moments of crisis. This presentation will attempt to contribute a new perspective to STS debates on the relationship between science and democracy, by re-interrogating the role of knowledge-producing bureaucracies and recasting bureaucrats in the surprising role of heroes.

Democracy, Experts, and the People: Narratives on “Facts” and Deception

Markus Arnold, Alpen-Adria-Universität Klagenfurt | Wien | Graz

Scientific and technological experts are crucial for establishing what Yaron Ezrahi called the “liberal-democratic theater”: in a liberal political regime expert knowledge helps to legitimize political decisions and to render agents more publicly accountable by defining political actions in instrumental terms. Discourses on “facts” are therefore part of today’s political as well as scientific infrastructure (Foucault, for example, tried to analyze this type of infrastructure with his concept of “moral technologies”). Within this discourse on “facts”, there are historically at least two distinct origins. First there were the modern sciences that endorsed the need to rely on evidence from “facts” (cf. Daston/Galison; Wooton). Second, as Michael Schudson argued in his seminal work “Discovering the News”, a more common sense “belief in facts” emerged in the media. This was especially prevalent in the middle-class penny newspapers that produced news for a “democratic market society” (although they were at the same time a major source for 19th century “fake news”). In my talk, I will give a short historical sketch of the narratives legitimizing scientific knowledge production as part of a “liberal” regime of functional separation of powers and the narratives of “populist” critique of these constitutional arrangements. The aim of this talk will be to analyze how these incompatible narratives negotiate the political, constitutional and “moral” foundations of today’s knowledge production. Whether we like it or not it is in the best interest of STS to take both sides of the arguments seriously, as in the ongoing debates referring only to the established scientific standards of knowledge production will not suffice.

Ignorance Studies: The Return of Ideology Critique?

Johan Soderberg

Do the concept of “strategic ignorance” apply to the social sciences just as it does to the natural sciences? This question invites us to connect back to the tradition of ideology critique, Georgy Lukács, Karl Mannheim, etc., from which STS has borrowed its problem field. Through an intellectual history of ideology critique, new light can be brought to ongoing, theoretical development within STS, as concerns interest, factual claims, and “speaking truth to power”.

Chairs:

Davide Orsini, Mississippi State University
Anna Weichselbraun, Center for International Security and Cooperation, Stanford University

Discussant:

Sheila Jasanoff, Harvard University

111. Academic Evaluation in an Age of "Post Truth": III: "Fixes"

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Dalton

STS has made major contributions in recontextualising the key concept of “values”. We can no longer take for granted that values are given or that they straightforwardly determine action. We know instead how much is involved in making, articulating, enacting and manipulating values. In academic work, such practices abound: we know that determinations of academic value involve contingent practices of evaluating, rating and ranking performance. What are the implications of this understanding of academic evaluation in the contemporary situation, where standards of truth are allegedly undergoing significant modification? In a situation of "post truth" (nominated as OD's new word of 2016) what contributions can our pragmatist orientation to evaluation make, and how? Is it possible or important to retain symmetry, impartiality, and agnosticism in a phenomenon which so closely homed? Is this simply to replay the contention that critique has run out of steam or are we witnessing the emergence of practices of evaluation that are inherently external to regimes of truth and thus of critique? Can STS make interventions that can make a difference? This panel invites papers which address the practices and transformations of academic evaluation in the age of post-truth. These practices include, but extend considerably beyond, the use of diverse metrics and indicators. For example, the panel invites discussion of peer reviewing, grant proposal assessments, paper grading, appointments and promotions, awards and prizes, book endorsements and other professional practices. We welcome papers which discuss more (or less) appropriate future modes of academic evaluation.

Participants:

Pre-Truth as a Means to Discount Politics in UK Academic Research Assessments: Sveti Milyaeva, Goldsmiths, University of London; Daniel Neyland, Goldsmiths, University of London

The UK has perhaps the longest-standing and most extensive single system of research evaluation in the world – the Research Excellence Framework (REF) (which builds on its predecessor the Research Assessment Exercise; RAE). The final truth of this evaluation system is the annual distribution of around £2bn of government research funding to Universities according to their REF results. Having spent time interviewing REF managers, academic assessors and others involved in the evaluation system, it seems that a central concern in the REF is not post-truth but pre-truth. We suggest a trenchant, internalised relativism stalks the assessment system, denying the possibility or validity of external referents of truth (such as journal impact factor). Scores achieved through peer review, however, only provide a pre-truth; each assessor’s, each disciplinary sub-panel’s and each collection of sub-panel’s (under a main panel) distribution of scores are checked and normalised if necessary to ensure consistent distributions of scores. A score is not the final truth, it just provides a position within a moveable distribution. Furthermore, assessors gain no overview of the ranking of institutions that results from scoring or the formula that transforms ranking position into an amount of government funding. The final truth of the REF – funding – is thus unavailable to assessors. The pre-truth of the REF, we suggest, is central to dampening a political fervour that might otherwise overwhelm the scoring system.

Credit and Debt, Co-Existence vs. Competition

Alexa Faerber, HafenCity University Hamburg

Analysing the temporalities of truth: negotiating peer review’s futurity in the Humanities in terms of credit and debt, co-existence vs. competition. In the last decade, peer review has become a new tool for valuating journals in the German-speaking Humanities. In a previous presentation of material from two journals in the field of cultural studies I have argued that the rhetoric of this “late conversion” to the dominant regime of academic valuation gives shape to a self-fulfilling prophecy. Here I will show that in the course of this conversion “truth” gets temporally stretched: ‘What is not yet true today (> the peer review as a valuable value), will be so tomorrow. Therefore we act as if it is true already today.’ This temporalisation of truth leads to an interesting multiplication: value in the shape of “not yet true” and value in the shape of “as if true”. In this paper I discuss this circular and performative temporalisation of the truth of value with respect to the actors involved: editors, contributors but also members of search committees and candidates. The “truthfulness” of peer review’s value is questioned in two interrelated conceptual directions: 1. Can we think of this temporalisation and multiplication in terms of credit (to/of the not yet valuable value) and debt (towards the actors involved) (see for example Joseph 2014)? 2. Regarding the aspirations attached to the installation of peer review what insights does the promissory quality of these situations reveal? In these perspectives “post truth” articulates a kind of futurity that relies
on the temporalization and multiplication of value’s truth and that creates co-existing but not competing truths. While this may
make point to the inconsistencies of everyday life including the
academic, one could nevertheless ask, what are the effects of this
cos-existence (see for example Tsing 2000) and for what purpose
could it be helpful to endorse their competition – and install
negotiations upon “pre truth”?

Crafting Transparency and Accountability: Evaluation of
Models, Metrics and Platforms of the Gates Foundation
Manjari Mahajan, New School University
This paper explores the practices of academic evaluation that are
used to ratify the models, metrics, and data platforms produced
by the Gates Foundation in the field of global health. What kinds of
technical experts evaluate the models and data? What are the
venues and forums where academic evaluation takes place?
Which are the different expert audiences that ratify these
evaluations? How are alternatives considered or coopted?
Studying the legitimization of the Gates Foundation’s knowledge
work throws a spotlight on shifts in evaluation practices and
politics in the field of global health. But it is also germane to
democratic theory and discussions of the production of public
knowledge and echo chambers: the analysis reveals how the
contingencies of evaluation can produce particular conceptions of
transparency and accountability.

Evaluative Inquiry: Toward Experimental Modes of Assessing
the Values of Academic Work Sarah de Rijcke, Centre for
Science and Technology Studies (CWTS); Thomas Franssen,
University of Amsterdam; Maximilian Fochler, University Of
Vienna; Tijitske Holtrop; Thed Leeuwen, Centre for Sciences
& Technology Studies (CWTS), Leiden University; Alex
Rushforth, CWTS, Leiden University; Clifford Tatun, CWTS
- Leiden University; Paul Wouters, Centre for Science and
Technology Studies, Leiden University
As many have discussed in the literature in STS and beyond,
current modes of evaluating academic work are in tension with
many academic values and criteria for high quality research.
However, there have been few attempts to move from critical
reflections to actually proposing new approaches to assessing the
values of academic work. This paper explores alternative
practices of (e)valuation and measurement in contemporary
academia through the concept of the evaluative inquiry. This
concept was proposed recently by Fochler and De Rijcke (2017)
and wishes to capture more enabling, rather than reductive,
approaches to building accounts of assessment. In the mode of
evaluative inquiry standardization is less relevant than staying
close to the epistemic missions, frictions and resonances of
academic work. The paper presents empirical cases of evaluative
inquiry. These cases are engagements with the Dutch national
evaluation protocol and trace a) the languages, materialities, and
practices through which the goods of science come into being,
and b) how STS concepts such as symmetry and distributed
notions of quality hold in these new assessment contexts. This
material will offer experimental attempts to give space to the
“critical multidimensionality” (Rabinow 2011, 139) of academic
work in assessments – numerically, verbally, and visually. This
can create new grounds to articulate academic values in new
ways, thereby also addressing how knowledge can be valued in
the age of post-truth.

Chair: Stephen Woolgar, Univ. Oxford
Discussant: Michele Lamont, Harvard University

112. Social Studies of Politics I
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Exeter
In STS, governance is conceptualized as a special kind of infrastructure
created by science and poured into technology. What else are we to make of
Max Weber’s foundational claim about the legitimate use of state violence
without the bureaucratic regimes crafted in economics and jurisprudence?
What are the goals and strategies that are linked to defining, measuring, and
counting people? Over the last decade a growing body of research in what we might call the Social Studies of Politics has unpacked the technoscientific assemblages of governing. But there is still
so much more. Voting machines and census construction, official statistics
and diplomatic training handbooks, data politics and state modeling -- a
few of the banner cases for this STS approach to politics and governance --
are NOT just the cold, rational nuts and bolts of modern politics. They are
loved and hated; cared for and rallied against; encountered and rendered
familiar or hostile by citizens, diplomats, policy makers, bureaucrats and,
of course, even us as scholars. These affective, aesthetic, and sensible
dimension of our technoscientific assemblages of governance seem to
become increasingly important. Understanding today’s world of post-truth
politics and its growing reliance on appeals to emotion and affect. For
this year’s sessions on the Social Studies of Politics we invite contributions that
explore the multiple ways in which we sense and make sense-able our
contemporary machineries of governance: How do we care for files, how
do we make borders visible, how to we love the technoscientific details of
modern statehood?

Participants:
“Cooperation.” Water and the Articulation of Regimes of
Goverance in California Patrick Carroll
This paper addresses how, in the case of California, regimes of
governance were articulated with respect to water through the
affective action of “cooperation.” Though for convenience one
can speak of a single regime of governance around water in
California, there are actually multiple regimes of governance
operating at different scales. These scales should not be
confused with hierarchical “levels,” as the “the local,” “the state,”
and the “federal” are. The conceptualization of hierarchical levels of
governance rests upon an archaic and reified understanding of
“sovereignty.” By thinking in scales it is apparent that a “local
water district” is not simply related to the federal regime of
governance through a series of steps from municipal, county,
regional or state regimes. Rather, governance at different scales
is assembled together in complex ways. That complexity is
particularly evident in one of the most exemplary cases of liberal
govermentality in the world, i.e. California. What one sees is
that while governance involves coercion, which is why I insist on
the word “regimes,” the scales of governance are not easily
coerced into an operative “thing.” An affective dimension is
required that goes beyond the state constitution being consistent
with, or at least not deemed to be at odds with, the federal
constitution. Though the latter is important, it only works
through the regimes themselves. Thus in this paper I argue that a
discourse and practice of “cooperation” was developed in the late
nineteenth century that has, despite all the shouting about “water
wars,” made it possible to effectively articulate different scales of
governance around water in the state. Indeed I argue that the
“affective” action provided by cooperation is critical to what
makes liberal governmentality “effective” (to the extent that it is).
Further, I suggest that this is even more the case when liberal
govermentality is confronted with engineering/technoscientific
governmentality (not to mention police governmentality).
Despite all the conflict (and therefore disarticulation) between
governance scales, cooperation still does affective and therefore
effective articulation work.

Drone Development as Boundary Making: Firebees and the
U.S. Nation in the Cold War Iván Chaar-López, University
of Michigan
National security rationales have dominated the study of Cold
War science and technology research in the United States. Hecht
and Edwards call us to move beyond such rationales and consider
a broader range of politics shaping and being shaped by
technological development. This paper focuses in understanding
the biopolitical scripts coded into drone operations in the U.S.
and its growing reliance on appeals to emotion and affect. For this
year’s sessions on the Social Studies of Politics we invite contributions that
explore the multiple ways in which we sense and make sense-able our
contemporary machineries of governance: How do we care for files, how
do we make borders visible, how to we love the technoscientific details of
modern statehood?
1948. They offered a way to mimic high-speed jet aircraft and, doing so, gave fighter plane pilots a “realistic target.” Their continued use in military exercises and weapons development allowed Ryan Aeronautical to claim in 1967 that “[e]very major weapons systems in the U.S. arsenal today has either been tested, evaluated or developed through the use of Firebee targets.”

Interception of intruder aircraft was construed as a cornerstone of national defense and, concomitantly, of national survival. Positing intruders as central targets for the defense of the nation, however, was not the exclusive domain of military concerns. Instead, the military built on broader anxieties about migrant bodies and the border. Though most people think of drones as a recent phenomenon, this paper documents and interrogates a crucial moment in the history of what I call drone technopolitics. The paper relies on archival and film materials from Ryan Aeronautical to chart how drones were integral parts in demarcating the national boundary—both territorially and on people’s bodies. The paper contributes to STS work dedicated to U.S. military research during the Cold War by showing how discourses on race and nation were embedded in and mobilized through technology. The paper also puts the STS literature into conversation with research on U.S. immigration and Latinas/os.

Indicators and Valuations Technologies: Assembling Solidarity

Two of the recent migration policy areas broadly defined by the EU Home Affairs Office are concerned with promoting a strong common asylum policy across member states and securing borders. At least two strategies have been developed as part of these policy areas: 1) the establishment of relocation quotas of refugees across EU countries and 2) the use of assessment forms to process applications from asylum seekers. About the first strategy, a distribution key for relocation in 2015 was proposed by the EU Commission based on “objective, quantifiable and verifiable criteria” (RFM May 2015). The key used weighting factors like a) the size of the population (40%), b) total GDP (40%), and c) unemployment rate (10%) of every country as indicators of their economic capacity to integrate refugees. An additional criterion consisted of the average number of asylum applications and the number of resettled refugees per 1 million inhabitants from 2010 to 2014 (10%). This key was used to establish the relocation of 160,000 refugees between 2016 and 2018. With regard to the processing of asylum applications, the assessment of those applications seeks to determine “whether the applicants could reasonably be expected to avail themselves of the protection of another country where they could assert citizenship” (CEAS 2014). Hence, protocols like the Revised Qualification Directive, the Revised Dublin Regulation and the Revised Reception Conditions Directive have dictated the economic and technical guidelines for assessing nearly 1.300.000 asylum applications between 2015 and 2016. Building on a previous case study in post-conflict Colombia, this project studies the public configuration of migration indicators (e.g. relocation quotas) and the assemblage of asylum application indicators in Europe. To do this, this work proposes to ethnographically trace how technologies of valuation (assessment protocols, calculations devices) produce those indicators, deploy bordering practices, and enact an infrastructure of governance. Borders are understood here as relational sociomaterial arrangements that exceed walls and fences extending themselves to bureaucratic, assessment and follow-up procedures. Besides being outcomes of quantification, indicators are problematized in this project as objects of sociological study. What do these objects make visible and neglect? What kind of infrastructure is enacted by these objects? and, what forms of (in) sensibility can this infrastructure facilitate or challenge? This work suggests approaching the sociomateriality of borders, valuation technologies and their coproduction with states and people in mobility. Drawing on STS and relational approaches to statehood inspired in Actor-Network Theory, this paper argues that the public uses of indicators also reconfigure narratives of statehood in different countries of Europe. The sociotechnical production of solidarity towards migration is a crucial part of these emerging state narratives; solidarity, in its administrative version, is then a form of “sensible” of statehood widely produced by devices of valuation and administration of populations.

State Affect and Techno-Political Governance Nicholas James Rowland, The Pennsylvania State University; Govind Gopakumar, Concordia University; Jan-Hendrik Passoth, Technische Universität München

The presence of the state in everyday lives is one justification for sustained scholarly attention in the social, political, and economic sciences devoted to theorizing the state and developing models that explain how politics, governance and administration are structured. In this space of scholarship one finds instrumental models (Marx), institutional models (Dahl), actor models (Scott, Skocpol), and network models (Foucault) jostling with relational concepts such as regime (Poulantzas), autonomous power (Mann), stateness (Evans), governmentality (Foucault) and structural effect (Mitchell). Although STS is a relatively recent entrant in this space, its contributions on two counts have been the inspiration for new lines of inquiry. First, increasing attention has been directed at the technoscientific materiality of practices that configure and constitute the state in diverse contexts. Second, STS has proposed analytical attitudes such as co-production (Jasanoff) and the actor-network state (Rowland & Passoth) that seek to theorize state presence within our technological cultures. Aligning methodologically and theoretically with STS contributions to state scholarship, an emerging trajectory to research emphasizes a related sensibility, which we refer to as “state affect” (i.e., the affective, aesthetic, optic, aural, and even olfactory (in practices of food inspection and regulation, for instance) dimensions of administrative and regulatory processes. Locating this emerging direction of STS research within scholarship in the interdisciplinary space of state theory and “the state concept,” this paper is an effort to make the state “sensible.”

Chair:

Jan-Hendrik Passoth, Technische Universität München

113. Structural Inequality and STS

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Fairfax A

This panel builds on the review essay “Structural Inequality and the Politics of STS,” which was published in the new Handbook of Science and Technology Studies (MIT Press, 2016). We build on and contribute to political sociology and political economy perspectives in STS by adopting a “structural” perspective that draws attention to the “durable inequalities” (Tilly, Durable Inequality, 1999) of power and resources as features of scientific and social life. Within the purview of “structure” we include positions characterized by class, gender, institutional, and global power structures, and we examine how these structures affect the contours of research agendas, methods, and evaluations of research problems and technological innovations and resistances. Far from a structural determinist perspective, we begin with the assumption that these inequalities can be challenged and rechanneled. Thus, we assume that institutional and social structures are not reducible to the outcomes of microsocial processes, and we examine how scientists, inventors, and activists strategize within structures to find and make opportunities for change. These papers develop the general issues discussed in the review essay through more concrete applications of this perspective to current research projects in both science and technology. Specifically, papers address social movements, science, and technology both in the U.S. and the world. They include race and class in GM seed resistance; race and invisibility of inventors; power, state, and society in developmental states; the role of environmental organizations in mitigating suppression of scientists; and relations between experts and social movements.

Participants:

DeColonizing DNA: Race, Seeds, and Intellectual Property
Regimes in Colombia Nathalia Hernandez Vidal, Loyola University Chicago; Kelly Moore, Loyola University Chicago
Social movements that challenge the importation of GM seeds into the agricultural systems of rural people in Africa, Latin America, and South Asia have typically focused on class-based resistance, emphasizing the effects of GM seeds on the lives of “peasants,” campesinos, and farmers, and the epistemological and cultural bases of their social movement challenges. STS and other analysts have followed suit, basing their analyses on the intersections of epistemology and class politics, and secondarily on “cultural” meanings of seeds and rural life—especially national and regional cultures. In Colombia, however, a different pattern has emerged: race has become a critical basis for rural agricultural communities to resist GM seeds. Afro-Colombians and Indigenous groups work alongside class-based social movement organizations that mobilize campesinos on non-racial lines. In this paper, we examine the origins of race-based GM seed resistance, using evidence from Colombian intellectual property and race law, and the activities of La Red de Semillas Libres, a national social movement network in Colombia. We examine these resistances as decolonial processes (Quijano 2007; Lugones 2007; Mignolo, 2001) in which racial categories formed under colonialism are simultaneously reproduced by law and used to resist contemporary capitalist regimes. Finally, we illuminate how the racialization of the epistemology and politics of GM seeds has strengthened the fight against the imposition of intellectual property regimes by broadening the bases of resistance in ways that are difficult for the government to counter.

Invisible Inventors: Cumulative Disadvantage in the Global Value-chain of Invention

Dr. Patricia E. Bath's invention, a surgical tool called laser-phaco, was characterized as “Star Wars” technology by American news media in the 1980s. More recently, news about laser-phaco concerns incremental patent improvements and the proselytization efforts of laser-phaco enthusiasts. Her initial achievement as the first Black Woman from the U.S. to patent a product for a medical purpose is no longer visible. In this paper, I extend previous work in STS on invisible technicians in research laboratories (Shapin 1989; Timmermans 2003) to argue that Dr. Bath is an invisible inventor: someone who has completed a patent-worthy project, yet whose innovation is not widely adopted or whose innovative identity is invisibilized. Invisible inventors are frequently marginalized by their race, nationality, gender or class and therefore do not fit the stereotype of an inventor, that is, the young, nerdy, U.S. White male tinkerer in his parent’s basement (Amsden and Clark 1999). Instead, invisible inventors are typically (if unintentionally) excluded from the social networks that would provide them with access to funds, advice, and other resources to disseminate their ideas and products (Amsden and Clark 1999; Fouc'hé 2003). Invisible inventors may draw upon skills and resources (or funds of knowledge; see Smith and Lucena 2016) unique to their social location. Dr. Bath's tale of her education and inventive pathway illuminates how intersectional oppression and cumulative disadvantage are embedded features of the global value-chain of invention. This paper draws upon archival research at the Smithsonian’s National Museum of American History, Lemelson Center.

Engineering the Island: The State, Technoscience, and Vulnerability in Singapore

Sufikar Amir, Nanyang Technological University

The merciless crisis that struck East Asia at the end of the twentieth century taught Singapore a valuable lesson. As a small country that lacks natural resources yet managed to achieve First World status, Singapore’s economy would remain vulnerable to global shocks if it stayed dependent on conventional strategies. This sense of precariousness prompted the Singapore government to lay a new economic foundation that relies on robust production of science and technology. Thus, at the turn of the new millennium, Singapore saw rapid growth of brand new institutions, capital-intensive initiatives, and significant investments that attract thousands of best talents from all around the world. Its rapid rise of the city-state has repositioned technoscience in Asia, if not the world. What is the logic that drove the Weberian technocratic state of Singapore to build massive technoscientific infrastructures within such a short period of time? And how is power played out in the organized production of technoscience? To answer these questions, this paper examines two crucial aspects. First, it looks at the arrangements of technoscientific institutions within the state structure that reflect the role and location of technoscience in Singapore’s developmental logic. It sheds light on interconnectedness that globally links Singapore’s technoscience to numerous research centers and labs in East Asia, North America, and Europe. Second, the paper discusses the ideological impetus that underlies the state’s ambitious endeavor in the pursuit of technoscientific progress. This unpacks power relations that characterize the relationships between the state and society.

Producing Undone Science: Suppression, Industry, and Mobilized Publics

David J Hess, Vanderbilt

This study brings a comparative and structural perspective to studies of the “merchants of doubt” phenomenon (Conway and Oreskes 2010) and of “intellectual suppression” (Martin 1986; 2007; Delborne 2008). The project is based on a small-N comparative analysis of a unique data set of 30 scientists from various fields (climate science, chemicals, food, electromagnetic radiation) to bring a more systematic methodology to this subfield of STS research. The dataset is based on scientists whose work has publicly drawn attention to various types of health and environmental risks and who have consequently run into conflict with industry groups that have engaged in various forms of intellectual suppression. The analysis develops a method for categorizing and measuring suppression, and it investigates variables that affect the level of suppression (e.g., levels of capital of the scientist, type of claim, type of industry). Thus, the project brings a systematic explanatory framework to the study of suppression and one aspect of the process of making undone science. Undone science is defined as the systematic absence of research identified by counterpublics when they seek to document potential risks and uncertainties of technologies and industrial processes, and they find that the desired research has not been done or has been significantly underfunded or suppressed (Hess 2016). The explanatory framework includes structural conditions defined as both social field position and social structural position. The project also examines the effects of mobilized publics' environmental and other social movements on the undone science. The project investigates the role of organizations that emerge to assist and defend the scientists.

Expert-Movement Interpenetration: Evidence from Two Boston-Area Social Movements

Scott Frickel, Brown University; Aaron Niznik; Apollonya Porcelli, Brown University; Amy Teller, Brown University

Structural inequalities in science shape not only the kinds of expertise that develop in science but also how and where scientific expertise circulates and impacts the larger world. This paper examines how scientists and other credentialed specialists interpenetrate social movements. We argue that “expert-movement interpenetration” is a collective response to structural inequalities and the politics of knowledge. While extant studies show that experts can form linkages between social movement organizations (SMOs) and elite social institutions to facilitate the mobilization of environmental and other social movements, they have not been done or have been significantly underfunded or suppressed. This paper examines the role of expert-movement interpenetration in the pursuit of technoscientific progress. This unpacks power relations that characterize the relationships between the state and society.
movements and works to differentially align expert skill sets with broad movement interests and goals; and 3) through training and hiring practices, local colleges and universities disproportionately supply experts to Boston-area social movements, suggesting that interpenetration is mainly a “local” phenomena importantly influenced by the geography of academic and professional labor markets. We outline the implications of these findings for methods, theory and politics.

Chair: Daniel Lee Kleinman, Boston University

114. Clashing Environments and Environmentalisms in Latin America I
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Fairfax B

Since the beginning of STS a few decades ago, the environment has become an important site for understanding the relation between different forms of knowledge (Wynne, 1996), the delimitation of science-policy interfaces (Jasanoff, 1990) and the management of technological risks (Wiertz, 2016). But as with most of STS, these discussions tend to have a distinctive Northern perspective, taking as a starting point the emergence of post-industrial risk societies in Europe and North America. At the same time, the body of literature that discusses environmental issues in Latin America and other developing countries tends to focus on power struggles while ignoring the central role of science and technology in framing environmental issues. In this context, we aim to bring together studies that look at different aspects of the relation between the environment, science, technology and society in Latin America. We believe that in this way STS could offer new perspectives to contemporary environmental controversies in Latin America. We expect contributions from a wide range of perspectives within STS and beyond, covering topics such as payments for environmental services (PES), REDD+, urban pollution, (post)colonial conservation, local knowledges about the environment, socioenvironmental conflicts, production of environmental knowledge across the north/south divide.

Participants:
Climate Modeling In Brazil: A Geopolitical Infrastructure Jean Carlos Hochsprung Miguel, Federal University of São Paulo

This paper investigates the practice of climate modeling in the Brazilian National Institute for Space Research (INPE) to understand how climate models become central tools in meteorological research and climate policies in Brazil. Through the perspective of Science and Technology Studies (STS), the paper investigates how climate models are socially constructed and how they become authoritative through extensive heterogeneous networks that enable them to have scientific and political importance. The fieldwork was conducted between 2013 and 2016, during which visits were made to INPE’s Center for Weather Forecasting and Climate Studies (CPTEC). Based on the information obtained in the fieldwork, the paper analyzes how modeling practices at INPE are constructed as part of a globally distributed climate knowledge infrastructure. We researched how climate infrastructures were constructed in the Brazilian context and in what way these conditions constitute modeling as a set of politically valued socio-technical relations. The paper concludes that in developing Brazilian climate models, the actors involved with climate science sought to modernize national research infrastructures and connect them to global scientific networks involved in modeling and climate research. This updating of research infrastructures in the field of atmospheric sciences in Brazil is associated with a dispute around the epistemic and political authority of meteorological and climatic knowledge at different scales of the governance of climate, in which different conditions of techno-scientific development are relevant. In these disputes, the actors are considered global or national according to standards of scientific production established by central countries; among them, the current epistemic supremacy of climate modeling makes models a privileged focus in international and national scientific networks in the climate area.


Drawing from 10 months of archival and qualitative data collection this study argues that ecological crises can give birth to new and competing economic rationalities of the natural world. In 1972 the anchovy fishery, the primary export commodity for Peru at the time, collapsed, prompting a nationalization of the fishery by the left-leaning military dictatorship under what was called PescaPeru. By transferring the means of production from private companies to the state, the anchovy was recast as a commodity that would not only feed the hungry, but also bring wealth to the working class. However, given the continued infertility of the fishery throughout the 1970s and 1980s, the idyllic vision of the fishery crumbled, triggering an influx of socialist and capitalist economic experts throughout the labor movement and state government who enrolled the fishery in competing attempts to resolve a system in crisis. Current political and economic sociology addresses the way that economists create political objects by “making legible” the environment (Scott 2000; Callon 2007; Fourcade 2010). While the majority of this literature is based on a capitalist understanding of resource production, there is a parallel and unconnected body of work that demonstrates how socialism, as a political project, is built upon its own economic rationalization of the natural world (Bruno 2007). I seek to inject the former body of work with the latter, underscoring the competing ideologies that enrolled the same environment, in this case the Peruvian anchovy fishery, through discourse, economic models, and policy measures in an attempt to create a uniquely “Peruvian way” to resource production.

Technological Traps: Standardized Agricultural Packages and Social-Ecological Conflicts. The Case of Soybean Production in Bolivia Georgina Catacora-Vargas, AGRUCO/UMSS; Brian Wynne, Lancaster Univ.

Under the lens of reductionist science and its corresponding technological designs and applications, the environment is assumed as categorically separate from societies, technologies, and human dynamics in general. This predominant epistemological perspective translates, inter alia, into standardized forms of techno–science in so-called modern agriculture, which are implemented as if the context would be external, homogeneous and controllable. Expressions of this agricultural approach are pre-determined technological packages applied to uniform monocrop agriculture and composed by commercial seeds (and associated contractual arrangements), agrochemicals, heavy specialized machinery, and related knowledges subject to deliberately introduced biological and legal excludability. The defining assumption is that ‘the environment’ is fully malleable to technology’s ‘efficiency’-requirements. The incongruence between standardized technological packages and the embedded, heterogeneous and dynamic environment generates social-ecological clashes that operate as ‘technological traps’. Using the case of soybean production in Bolivia complemented with examples from Brazil, this concept is explored in terms of the deadlock that industrial agriculture creates through its corresponding technological (and social) packages, resulting in intertwined ecological imbalances, debt, and dominant imaginaries of agricultural modernity and social differentiation among small and medium scale farmers. In our analysis we include the impact of these factors on other possible trajectories different from industrial agriculture, such an agroecological approaches.

Chair: Raoni Rajão, Federal University of Minas Gerais (UFMG)

Discussant: Raoni Rajão, Federal University of Minas Gerais (UFMG)

115. Working at the Edges: Migrants, Women, and Minorities in Technosciences
Traditional (Closed) Panel
2:00 to 3:30 pm

Chair: Raoni Rajão, Federal University of Minas Gerais (UFMG)

Discussant: Raoni Rajão, Federal University of Minas Gerais (UFMG)
Global circulations of migrants, women, and minorities (MWM) through technosciences, including STS, fundamentally transform sense/knowledge makings, material cultures, and infrastructures, while remaking technoscience MWM and exposing the global political economies/exclusions at play. MWM can strategically negotiate intersectional distinctions at work while building alternative processes and engagements with technoscience work. This open panel calls for projects using an array of discursive, methodological, and theoretical strategies that explore such queries as: What strategies enable technoscience MWM to work successfully at the edge? When and where? How do they vary between MWM and differ from others? * How do MWM workforces/practices in STS resemble other technoscience MWM? * How have MWM gained/maintained access to, engaged with, and changed technoscience (education, jobs, projects, techniques, discourses, data, instruments, etc)? * What kinds of webs of relations do technoscience MWM build/maintain/avoid? * What kinds of sense/knowledge making strategies and pedagogies do MWM employ, and why? * How do MWM circulations enable new kinds of sense/knowledge making? * How do MWM interventions differ across technoscience fields? * How do socio-cultural (in)sensitivities affect sense/knowledge making when technoscientists often believe their work is neutral about socio-cultural distinctions? * What are MWM discursive and narrative strategies? * What STS theories make sense of MWM practices? How do MWM practices intervene in STS theory making? * What do MWM strategies expose about glocal technoscience ethics and political economies? * Why has the global representation of MWM in the biomedical/social/STS technosciences changed so much since 1970, compared to physical sciences/engineering?

Participants:

Discover the Silent Voice in the U.S. &E Workforce: Chinese Immigrant Women Scientists and Engineers Diane Gu, UCLA

Foreign-born women scientists and engineers who are studying and working in the United States constitute a rapidly growing yet understudied group. Despite being highly educated and well represented in U.S. science and engineering fields, they remain invisible. Chinese and Indian women make up a significant part of this group. In the physical sciences and engineering, many of these women have pursued their undergraduate education in their home countries but have done or are doing their doctoral work in the U.S. and then remaining to pursue careers. However, publicly available large-scale data on international students and scholars, including those from China, is extremely scarce; and what there is rarely indicates the gender breakdown within such groups. This is one reason that systematic and longitudinal studies of science and engineering international women students’ mentoring relationships, gender dynamics, social networks, challenges and career outcomes are yet to be seen, a gap this paper hopes to fill. Chinese immigrant women and their transnational research networks play increasingly significant roles in the U.S. science and engineering workforce, particularly in computer sciences and engineering. It is important to understand more about the motivation, immigration patterns, career paths and more importantly the gender dynamics of women Chinese graduate students in physical sciences and engineering programs. In particular, it is crucial to understand the part of Chinese culture and history that heavily impacts the education system and schema in China, and how these in turn affect the lives of Chinese women who study and work in the U.S. And finally, it is important to look at these issues, the racial/gender discrimination, the absence of mentoring and negative advising relationships, the prejudices, the sexual harassment, and the special challenges of achieving a balance between work and family facing women living in foreign countries. It is especially important to examine these issues from a Chinese feminist perspective, one built on both Chinese culture and feminism as well as on the works of women of color in the U.S. This paper, derived from my book “Chinese Dreams? American Dreams? The Lives of Chinese Women Scientists and engineers in the U.S.” is one of the first studies to document foreign-born women scientists’ and engineers’ education experiences and careers in the U.S., in this case Chinese-born women, and to examine the strategies they employ to advance careers, establish networks, promote transnational research collaborations and secure funding. It takes a fresh look at the lived experiences of these women and their cultural backgrounds, with a special emphasis on Chinese-born women, who are especially numerous whose numbers are growing, and whose lived experiences and reflections can tell us a great deal about the emergence of China as a scientific and technological leader. The ethnographic data of this project becomes even more critical given the lack of statistical data on the community of foreign-born women in the science and engineering fields. This book provides their voices, shares their struggles, and documents their daily experiences and encounters with their environment. Through my own experience as a Chinese woman in the U.S. and my interactions with other women, I sadly realized that many misconceptions, misunderstandings, challenges, and discriminations still largely exist in the land of freedom and its ivory towers. Yet, there are few scholarly works that reveal the current daily academic and social conditions of these women who live in the margins. I spent eight years doing ethnographic fieldwork with over 40 Chinese women scientists and engineers in the U.S. I conducted oral history interviews, had informal conversations, participated in group activities, and socialized with Chinese women scientists and other international scientists and engineers. More importantly, as an immigrant Chinese woman scholar, these experiences enabled me to constantly reflect on many facets of migration and how it impacts individual woman’s experiences interacting and collaborating with friends and colleagues transnationally. It makes me realize that there is no one definition of being a Chinese woman. All of their experiences are defined, shaped and reshaped by their ethnicity, sub-cultural backgrounds, their K-12 and undergraduate educational experiences, family backgrounds, and even geographical origin in China.

Theoretical Limits in Understanding Big Technoscience Projects Sharon Traweek, UCLA

I explore how distributed trans-local, trans-disciplinary collaborations in the physical sciences and related engineering fields make and transmit their craft knowledge, research styles, pedagogies, disputing practices, and political economies when the scale of their infrastructure work is huge: people, data, land, equipment, energy, distances, and cost. I examine both observational and laboratory-based research fields; to build telescopes, accelerators, ships, etc, they must design, assemble, maintain, and repair resources at all scales, from algorithms, tools, techniques, and local communities to concepts, universities, inter/national organizations, plus politicians, bureaucrats, and industrialists everywhere. I learn about their embodied, situated ways of knowing: how new ideas, artifacts, and practices are crafted, assembled, used, exchanged, and can become powerful locally and globally. I study how classes, cultures, ethnicities/races, genders/sexualities, nationalities, relationships, and migrations make a difference and how the practitioners have made strategic use of those distinctions. In my multi-method, multi-sited research I collect oral life histories, use archived documents, and conduct longitudinal ethnographic fieldwork in Japan, Switzerland, Sweden, and the US. I also work collaboratively. Since the 1970s there has been increased societal, governmental, and economic pressure on these practitioners to ‘diversify’ their workforces. The biomedical and social sciences have altered in fundamental ways, but engineering and physical sciences have not. Actor network theories, feminist science studies, and the 4 prevailing theories about STEM inequities cannot account for those disparities. I discuss the enabling assumptions and “insensitivities” in that work and offer solutions that alter our understanding of big technoscience projects and STS concepts.

Transnational Ties: Technoscientists at Women’s Colleges in Japan and the U.S. in the 20th Century Vivian Wong, University of California, Los Angeles


What is the role of “predominantly undergraduate institutions” (PUI), especially liberal arts colleges, in the education of women engineers and scientists in the U.S. and Japan? In my presentation, I will discuss my work-in-progress about gender, ethnicity, migration, and the technociences at women’s colleges in the U.S. and Japan since WWII. My research methods include primary source archival research, oral history interviews, and documentary filmmaking. Margaret Rossiter published a groundbreaking set of studies in 1982, 1995, and 2012 that demonstrated women’s colleges in the United States have educated a significantly disproportionate segment of women with careers in engineering, medicine, and science since the late nineteenth century. Little additional work has been done on why and how those efforts have been so distinctively productive for over 150 years in such different historical, political economies. There also has been little work on whether and how similar institutions in other countries have likewise generated many women engineers, physicians, and scientists. One part of my research focuses on two women’s colleges that have cultivated webs of relationships leveraged the early twentieth century that foster student exchanges and the circulation of knowledge through these institutions and beyond: Bryn Mawr College, near Philadelphia, PA and Tsuda College in Tokyo, Japan. As a child, Umeko Tsuda was sent by the Japanese government to live and study in the U.S. for eleven years; she attended Bryn Mawr College in 1899, doing graduate work in biology, as well as literature and philosophy. When she returned to Japan she founded the women’s college that would later bear her name in 1901; Tsuda College remains one of the oldest and prominent private women’s college in Japan. Bryn Mawr College was established in 1885; it was the first higher education institute in the U.S. to offer graduate degrees, include doctorates, to women. My research also considers Bryn Mawr and Tsuda College graduates in the technosciences since WWII. The other aspect of my work examines women faculty in technoscience fields internationally, including the U.S., who have taught and conducted research in U.S. colleges since WWII. This project includes a series of oral history interviews with those faculty members about their transnational, diasporic careers and strategic choices to teach and conduct research at women’s and small liberal art colleges in the U.S. I also explore how technocientists at ‘predominantly undergraduate institutions’ have found and leveraged the benefits of their work not being based at research universities.

Gendering Rivets: Women’s Work in War Stefka Hristova, Michigan Technologic University

The Rosie the Riveter poster became an iconic image representing the women’s war-related labor during World War II. It displays a woman showing off her upper body strength along with the assertive tagline “We Can Do It!” This poster speaks to an assumption about the physical inferiority of women when it comes to technology that holds true to the present day: namely women have less upper body strength then men and therefore are unfit to perform well in jobs that require physical strength in the military as well in civilian industry. To this day, assertions about this “weakness” are cited as a barrier for women’s entry into the military. The riveting technology, however, presents an interesting case in which technology was adjusted to meet the physical standards of women during World War I and once “feminized” became the hallmark of women’s involvement in war during World War II. Working with photographs and historical documents from the “Records Of The Women's Bureau” and “Records of the Woman-in-Industry Service 1918-1920” National Archives collection, as well as aircraft industry journals from World War I and II, in this project I explore the relationship between technology and gender. I take riveting technology as my center point in order to examine the myths of women’s physical inferiority in the context of technology that has been designed in a first place for a male user. I explore the role of technology redesign as an inclusive rather than exclusive factor and the perceptions of the act of redesign as an act of rendering technology feminine. In other words, I illustrate the ways in which technology is perceived generally as neutral when designed for male use, and as feminine when women have been considered its primary users.

Chair: Sharon Traweek, UCLA

116. Biotechnology and Bioeconomy

Traditional (Closed) Panel

2:00 to 3:30 pm

Sheraton Boston: Floor 3 - Gardner B

Participants:

Genetically Engineered Animals, Risks and Regulations Zahra meghani, University of Rhode Island; Jennifer Kuzma, North Carolina State University

The Food and Drug Administration (FDA) is a key US agency responsible for regulating biotechnologies. In 2015, it approved the use of a genetically engineered (GE) salmon as food. The GE fish is designed to grow at a faster rate than its wild counterpart, enabling salmon farming facilities to get their product to the market sooner than they would otherwise. In 2016, the FDA greenlighted the use of a GE mosquito to suppress the population of the wild Aedes Aegypti mosquito, which transmits the Zika virus and Dengue. The GE mosquito and its progeny need tetracycline to survive. The assumption is that the GE mosquitoes will mate with their non-GE counterparts and the resulting offspring will not survive because of insufficient quantity of tetracycline in the non-laboratory environment. Thus, the wild mosquito population will be reduced. We argue that since the 1980s, the FDA appears to be acting under a neoliberal mandate. The agency has privileged industry interests over public health and the environment in its risk assessments of biotechnologies. To make our case, we evaluate the agency’s risk assessment of the environmental impact of the GE salmon and the GE mosquito. We argue that the FDA’s risk assessment protocol should be revised so that it is procedurally robust and entails substantive public engagement. Thus, counteracting the agency’s neoliberal bias and inviting warranted public trust in its regulatory decisions. Our paper contributes to the STS literature by identifying and evaluating the normative concerns shaping US regulatory policies for biotechnologies.

Networks, Alliances and Social Capital in Innovation Processes: Biotechnology in Puebla, Mexico, and Bologna, Italy Jose Francisco Romero-Muñoz, Benemérita Universidad Autónoma de Puebla; Rollin Kent, Autonomous University of Puebla

In the second half of the twentieth century, contemporary Biotechnology developed first in the United States, followed by Japan, the United Kingdom, Germany and France. Toward the end of last century, this discipline emerged in mid-level capitalist countries, such as Italy and Mexico. In these latter countries, however, the development of biotechnology followed different routes both within academia and firms. This presentation offers the main findings of a study focused on the different trajectories and forms of collaboration in biotechnology research teams in Puebla, Mexico, and Bologna, Italy. The objective was identifying the drivers behind collaboration between university and industry. Two determining factors stand out: 1) The formation of social capital (understood as the benefits and resources of interpersonal contacts among researchers and entrepreneurs); and 2) Dissemination efforts on the part of academics that serve to enhance their prestige and generate confidence among academic and entrepreneurial circles. Additionally, findings point out issues for public policy: policymakers are mostly focused on indicators such as spin-offs and patents and are insufficiently aware of the diversity of links between university and industry, such as consultancies, collaborative research, human resource training for industry and knowledge dissemination. Policy indicators are insufficiently sensitive to important qualitative aspects of social capital in these areas. Another issue for consideration by policymakers is the
117. Precision Medicine, Race/Ethnicity, and Public Health in Comparative Perspectives

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Hampton A
Human molecular genetics have generated a focus on precision medicine (also known as personalized medicine or stratified medicine), with the promise to use the analysis of an individual’s unique genetic makeup to enable more precise diagnosis and treatment of diseases and illnesses around the globe. At the same time, however, there is a rich body of work demonstrating the simultaneous racialization of biomedicine and the molecularization of race (Duster 2006, Fullwiley 2007, Fujimura and Rajagopalan 2011). Studies in Asia have identified ethnicization of biomedicine and the molecularization of ethnicity (Sun 2017, Tsai 2012). This panel calls for papers examining the intersection between the pursuit of precision medicine and the degree to which racially- and ethnically-based population studies of human genome variance shapes the delivery of public health. The following are possible questions for papers in this panel:

- How do scientists define populations in population-based genetic and genomic studies in the pursuit of personalized medicine? What is the interaction between population-based genetic/genomic studies and public health in different political contexts? Whether and how do population-based genetic/genomic studies shape genetic screening policies? What should the government pay for (drugs, companion-tests, kinds of diseases/illness) and why should they pay for it? How should the cost be distributed among different stakeholders (the government, insurance companies, employers, patients, etc)? Should precision medicine serve as a national/public healthcare strategy; why or why not? Who actually benefits from the precision medicine initiative?

Participants:

- Can Genomics Improve Population Health Without Exacerbating Health Inequalities? Public Health’s Role in Research Translation Laura Senier, Northeastern University
In May 2013, Oscar-winning actress Angelina Jolie announced that she had undergone prophylactic mastectomy after genetic tests revealed that she was at very high risk for breast and ovarian cancer. This announcement magnified expectations that genetic testing would alleviate the population-level burden of adult-onset diseases. It also, however, fueled concerns that genomic advancements might not be equitably available to all women, and raised questions about whether the US healthcare system is prepared to screen large numbers of women, to identify those who might benefit from genetic testing. State health agencies play a critical role in the translation of novel medical discoveries into population-level screening programs and interventions, but have been largely ignored by STS scholars who study research translation. This paper examines how Michigan’s state health department has incorporated genomics into their chronic disease prevention programs. Based on four years of field observation at the Michigan health agency, a review of archival documents, and in-depth interviews, this project is part of a larger comparative case study that examines variations in organizational capacity and readiness across three US states. We find that they used sensemaking frames for two purposes: first, to manage ambiguity and reassure their colleagues within the state health agency that genomics should be an important component of population-level chronic disease prevention, and second, to maintain their program’s organizational identity in a period of rapid growth and maturation. We show that while these sensemaking frames gave them the interpretive flexibility to respond nimbly to rapid developments in genomics, this agility has come at a cost, as attention to disparities in access to genomic testing has waned and waned over time.

- Globalization and Sensitivity to Racial, Ethnic, and Gender Diversity of Human Subjects in Clinical Trials Laura Bothwell, Harvard Medical School
Before experimental new drugs can be widely used, drug sponsors must submit to regulatory agencies the results of clinical trials testing drug safety and efficacy. In the US, the Food and Drug Administration (FDA) encourages drug sponsors to study outcomes among diverse populations by race, ethnicity, and gender, as trials sometimes reveal different treatment effects by these subpopulations. Recent efforts have been made to improve trial diversity in response to historical scenarios in which trials have lacked adequate representation of diverse participants. Yet, improving trial diversity has also been complicated as trials have increasingly globalized in recent decades, sometimes relying on relatively homogenous populations from individual countries. These trends raise questions of the applicability of trial results from one region to diverse populations elsewhere, as such trials are often used to inform international drug use. In other scenarios, globalized trials have expanded the diversity of human subjects, although new questions have emerged regarding the interchangeability of evidence on treatment effects among populations of different racial, ethnic, or gender backgrounds in different international social settings. This study examines all clinical trials used for drug approval by the FDA in the past five years, assessing the sensitivity of trials to measuring gender, racial, and ethnic diversity of research subjects in different international settings. It also critically examines reporting of drug effects among minority groups and women by region. We discuss areas for improvement in nuanced trial sensitivity to racial, ethnic, and gender diversity of participants in different international settings, and STS implications.

- Small Country, Big Project: The Development of Precision Medicine in Switzerland Francesco Panese, Luca
Precision for Whom? -- Paying System for Patient Selection by tests for selecting appropriate patients for target drugs in trade of by the government and pharmaceutical companies, has been established under a nationwide framework. The relationship of the patients, government and pharmaceutical companies, and the different politico-economic considerations from the three different actors, a special paying system, negotiated for pharmaceutical companies. To satisfy the expectation from also to the administrative agency. This complex politico-economic situation also defines and limits the promotion strategy for pharmaceutical companies. To satisfy the expectation from these three different actors, a special paying system, negotiated by the government and pharmaceutical companies, has been established--the pharmaceutical companies pay the molecular tests for selecting appropriate patients for target drugs in trade of the coverage of such expensive drugs is always a big social issue, not only to patient groups but also to the administrative agency. This complex politico-economic situation also defines and limits the promotion strategy for pharmaceutical companies.

Megan Finn, University of Washington

Contemporary social media platforms are promoting new features that they employ when they decide that something is a disaster. For example, Facebook can declare an event an emergency and enact the software product “Safety Check.” How does network infrastructures become apparent as “objects” with which activists or community stakeholders might intervene? Within a crisis, who perceives and responds to the imperative to care for precarious populations and justify the need for social/technical repair. We are particularly interested in social justice, feminist, and anti-colonial perspectives that foreground how activists or community groups intervene in technological infrastructures through forms of care, maintenance, and repair. The panel understands “crisis” as a way of describing how vulnerability is distributed through infrastructures: while crises are unlivable to some (the AIDS Crisis, The Prison Industrial Complex, Climate Change), they can appear as the normal state of things to others.

118. Crisis Infrastructures and the Politics of Interdependence

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Hampton B

How actors in these arenas are making sense of, and in some instances, translating Precision Medicine, is a topic of interest to STS scholars working on biomedicine, translation, ethics, collaboration, and public and population health. This paper offers a reflective account of doing translation work in “precision public health” via anticipatory ELSI (Ethical, Legal, and Social Implications) research at the intersection of genomics and infectious disease, drawing on issues confronted in outbreak detection, personalized vaccines, and microbiome-based therapeutics. Translation, as STS scholarship has shown, is not a unidirectional process of importation, but a dynamic social process involving the negotiation of political, epistemic, ontological, and moral questions about the power relations between the health care and public health sectors; what constitutes good evidence and who decides; and which persons, publics, and populations stand to benefit from (or are left out of) new visions for ensuring public health.

Chair: Shirley Sun, Nanyang Technological University

Participants:

Corporate States of Emergency Megan Finn, University of Washington

Contemporary social media platforms are promoting new features that they employ when they decide that something is a disaster. For example, Facebook can declare an event an emergency and enact the software product “Safety Check.” “Safety Check” then asks a selected group of people who are algorithmically determined to be within the affected geographic region if they are safe. This paper analyzes corporate emergency action from three perspectives. First, I consider how Facebook constructs what Tarleton Gillespie calls a “calculated public” of people potentially affected by an emergency. Facebook determines who might be affected by a disaster by algorithmically “crawling” the representation of their constituents, through a networked graph. Second, I consider the ontological invocation of emergency from the perspective of several decades of scholarship that question what gets called emergency versus other kinds of suffering. Facebook employees deploy Safety Check when they deem that an event qualifies as an emergency. Last, I ask what is means to think of Facebook as asserting sovereign authority over its users, and what a permanent state of emergency might mean in the context of corporate governance over states of emergency. Facebook acting as a sovereign entity raises questions about whether a private
corporation can or ought to fulfill activities that citizens might undertake through public institutions or civil society. Safety Check reaches into someone’s private space in unpredictable and alarming ways, and could extend Facebook users’ conceptions of legitimate corporate practices – a permanent state of emergency – in ways that potentially violate users’ autonomy.

Infrastructural Interdependency at the End of the Millennium

Dylan Mulvin, Microsoft Research; Cait McKinney, University of Toronto

This paper compares twin histories of imagined infrastructure crisis during the last decade of the 20th century: The Y2K bug and HIV/AIDS. These interwoven crises tied large-scale, social upheaval to technological precarity in order to explain the importance of networked computing for society, and the developing interdependencies of computing infrastructures. These cases are drawn from our individual research projects and are based on archival research from the Charles Babbage Institute at the University of Minnesota and the Critical Path Initiative in Philadelphia. Through this collaborative history project we are developing a broader model for understanding how crises expose infrastructure for at-risk populations. Y2K and HIV/AIDS each made apparent the unequal distribution of vulnerability to infrastructural collapse and the need for both social and technical repair. They also engendered and invited community intervention with computer networks during a period of rapid and widespread adoption. In the case of Y2K preparedness, this meant educating and training individuals and community organizations to manage the unforeseen and potentially devastating effects of old computer code. In the case of HIV/AIDS, activists with technical capital trained and provided free dial-up access to people living with AIDS so they could access vital treatment information. By bringing these cases into dialog, our project argues that “amateur” publics don’t just passively await or ignore potential infrastructural failure; rather AIDS activists and Y2K preparedness activists intervened in developing computing practices by actively constructing support networks and building vocabularies to describe and understand technologically mediated interdependency.

Re-Membering Queer Networks: Crisis in Production of the LGBTIQ Non-Profit Industrial Complex

Jen Jack Gieseking, Trinity College

The reconsideration of network histories can shed light on the lives of marginalized groups, specifically in the “successes” and/or “failures” of resultant, at times partial, infrastructures to moments of crisis. This is the case in the development of lesbian, gay, bisexual, trans, and queer (LGBTIQ) organizations in New York City spanning the 1980s to 2000s. My research draws on the mission statements, geographies, and efforts of 382 New gay, bisexual, trans, and queer (LGBTIQ) organizations in New York, spanning 1983-2008. This is likely the largest LGBTIQ organizational collection in the world, and none of which have been previously digitized or analyzed in full. The data visualization of these archival materials—reconceptualized and employed as data—contributes to the reconceptualization and analysis of online and offline networks on behalf of social justice. I pay special attention to how the LGBTIQ non-profit industrial complex (NPIC) was able to secure a large footprint in the 1990s as an outcome of the AIDS epidemic and its residual activist infrastructures. I suggest that the LGBTIQ NPIC relies on a politics of interdependence to unite its participants, while further segmenting LGBTQ people—and all people, in turn—by defining and delineating whom is “at risk.” Through a queer trans feminist graph analysis of this dataset, I argue that the networked histories of marginalized groups only materialize through a process of “re-membering” the bodies and stories: by reading the few data of these groups over time in order to understand the stories and memories of change within.

Gender and/as Infrastructure: (In)Sensibilities of Gender

Tristan Gohring, Indiana University - Bloomington

In this paper, I adopt feminist STS concepts and frameworks to address and analyze gender as (an) infrastructure. Specifically, I use Bower and Star’s analysis of classification and infrastructure to propose an understanding of gender as a system of classification and therefore as an infrastructure embedded in other societal institutions. By characterizing gender as a classification system, we can see the important bureaucratic and organizational work it does as a physical and symbolic infrastructure. Although in many ways gender can be understood as a cultural construct, it is certainly materially inscribed into our social and political world. Once a person is assigned a sex at (or before) birth, that designation follows them everywhere—it is written on all forms of identification, it delineates appropriate partners for socialization and romance, and it generally determines the kind of bathrooms they use. However, it also creates “torque” (Bower & Star, 1999) for those who do not fit neatly into the classification system, such as intersex people, transgender people who identify with a different gender than they were assigned at birth, and nonbinary people who do not identify as either a man or a woman. Identifying gender as an infrastructure also helps explain why the system is so widely taken for granted by cisgender people, as well as why there is so much social and political resistance to any changes in our collective understanding of who counts as a member of any given gender. I will introduce the concept of gender as infrastructure, exploring the ways in which recent transgender visibility has led to gender infrastructure becoming more fraught and less transparent. Adopting a notion of gender infrastructure poses several productive questions that I will begin to address in my paper. When (and for whom) is gender infrastructural? What work must be done to maintain gender infrastructure? What happens when the infrastructure of gender breaks down? How does gender as an infrastructure interact with other sociotechnical infrastructures? How does conceptualizing gender as infrastructure render various gender identities more or less sensible? While many scholars have approached STS from a feminist standpoint, very few scholars have used STS frameworks to study gender itself. This paper contributes to STS by expanding conceptions of maintenance and infrastructure and posing a new direction for feminist STS scholarship.

References


119. Predictability’s Promises III

Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Jefferson

Modern techniques to render phenomena predictable — including computer models, big data analytics, and global observing systems — have rendered certain possibilities of the future legible, and the “not yet” calculable. Predictability calls forth futures yet-to-come: from forecasts of tomorrow’s weather or Earth’s climate in 100 years to the outcome of political elections; from the next earthquake to hit a population centre to the pathways of infectious diseases; from next year’s consumer choices to next month’s military operation by enemy troops. The concept of ‘predictability’ is a powerful organizing figure in the production of what could or will be. Insofar as the present is an anticipatory future, ‘predictability’ is a powerful organizing figure in the production of what could or will be. Insofar as the present is an anticipatory future, ‘predictability’ also configures the here-and-now: it propels collective action and frames the idea of risk. When (and for whom) is gender infrastructural? What work must be done to maintain gender infrastructure? What happens when the infrastructure of gender breaks down? How does gender as an infrastructure interact with other sociotechnical infrastructures? How does conceptualizing gender as infrastructure render various gender identities more or less sensible? While many scholars have approached STS from a feminist standpoint, very few scholars have used STS frameworks to study gender itself. This paper contributes to STS by expanding conceptions of maintenance and infrastructure and posing a new direction for feminist STS scholarship.

References


Chair:
Cait McKinney, University of Toronto

Discussant:
Dylan Mulvin, Microsoft Research
epistemic space do these tools and frameworks give rise to? • How is ‘time’ conceptualised in the various sciences of predictability? • How is uncertainty brought into the realm of the calculable or measurable? • For what reasons, and for whom, has ‘predictability’ come to matter in different contexts?

Participants:
Predictability’s Possibilities and the Political Promise of Anthropogenic Global Climate Change
Adam Fleischmann, McGill University
In an era of anthropogenic global climate change, predictability comes to matter in profound ways. This is an Anthropogenic era of uncertain futures, in which certainty is premised on the promises of predictability. Predictability configures the here-and-now and calls forth futures yet-to-come through climate science’s ability to predict humans’ impact on Earth’s geophysical processes. The very epistemic space of a global climate is upheld by the promise of predictability: models whose job it is to correlate the present to the past in order to predict the future. Predictability, therefore, is inherent in the multiple discourses and knowledge-making practices surrounding anthropogenic climate change. Yet climate science’s promises of predictability do not necessarily produce ways of knowing the uneven, unequal histories and possible futures of “human made non-livability” (Tsing 2015). This paper will examine how the concept of climate change is made to do work, making up people and political possibilities. It will contribute to scholarship in STS, anthropology and related fields through discussions of anthropogenic livability, histories of capital and colonization and the political possibilities of climate change, by asking: How does the concept of anthropogenic global climate change authorize certain possibilities while foreclosing others (Stoler 2016)? What visions of livability do its forecasts anticipate? What collective forms of action do its predictions portend? What possibilities does it produce for anthropology, and for fieldwork among practitioners who’s own research is neither strictly climate science nor climate activism, but, rather, extends across them?

Possibilities of a Prediction: From Weather Forecasting to Climate Modeling in a Nuclear World
oliver chanton, IRSN
In this paper, we will analyze how weather and climate forecasting came progressively to matter in the regulation of nuclear risks in France and how it contributes to the construction of a vision of the French nuclear infrastructure among the actors of the regulatory system. This vision is the product of a combination of techno-scientific tools aiming at drawing various types of predictions (from climatic hazards to the calculation of the reliability of technical barriers), regulatory arrangements together with normative and strategic ideas about what should be done and by whom in face of climatic hazards. Emerging as a core element of this vision, we find the notion of resilience. The incorporation of this notion constitutes a major shift in the way regulation of risks is conceived and implemented in general (Boudia and Jas, 2015). We will show that this emergence is the consequence of a strategic reframing of technical vulnerabilities, of uncertainties concerning the predictability of extreme climatic events and of their consequences. We will conclude our presentation by drawing some of the possible implications of this shift concerning the French nuclear regulatory framework.

Cryo-Epistemologies: An Anthropological Investigation of Sea Ice Predictability
Jullianne Yip, McGill University
In 2007, minimum Arctic sea ice extent (SIE) hit an unprecedented low. The record-breaking SIE caught scientists by surprise, not only because it shattered previous minimums but because it escaped scientists’ frameworks of prediction. It gave scientists pause to wonder: what had they missed, and why? The 2007 SIE low came to represent a moment of epistemological instability but also an opening: an opening for an open research network amongst themselves, scientists took it upon themselves to investigate Arctic sea ice predictability. The aim of this paper is to understand how the figure of ‘predictability’ in general, and the predictability of sea ice in particular, gives rise to a particular way of ordering the world today. Through what techniques, conceptual frameworks, and institutions is ‘sea ice predictability’—as a technology for thinking and acting—configured? What spaces for thinking and fields of intervention does it potentially produce? On one hand, sea ice predictability research extends existing discussions about the kinds of epistemic claims produced through weather forecasting and climate modelling. On the other hand, sea ice predictability elaborates these epistemic considerations in new directions. Predictability under the sign of sea ice brings into view different timescales and assemblages. Thus, sea ice in particular offers an experimental site to not only test given assumptions about predictability but to potentially reconfigure the concept of predictability itself. I will explore these questions about sea ice predictability research using my dissertation fieldwork with sea ice scientists conducted from 2014 to 2016.

Making Resilience Predictable: Exploring the Predictive Politics of the Modelling and Generation of Resilience
Samuel Randalls
Calls to enhance resilience to climate change, security threats, or trauma, might be considered as the very antithesis of predictability. They often evoke unpredictability and surprise, a need to be prepared for the unknown. Yet, predictability is central to assessments and predictions of the resilience capacities and actions of peoples, systems or infrastructures. Predicting resilience, through tests, modelling or other forms of assessment, shapes strategies of intervention to develop more resilience. Predictability becomes associated with the response as much as the event. Drawing on recent research on the ontological politics of resilience (Simon and Randalls, 2016), in this paper I focus on how resilience actors make claims for and enact particular futures while toying with tensions about the nature of predictability in practice. For example, in disaster risk planning and climate change adaptation, modelling is increasingly used to predict the benefit of and choose between possible adaptation and sustainable development interventions to achieve risk reduction to future disastrous events. These models and assessments not only come to shape ‘how much’ resilience actors or systems are said to possess, but also to design interventions to enhance resilience, and predict (often through the same techniques) how the future-proofed newly resilient subjects might respond to those events. In sum, to demonstrate achieving resilience in practice requires a faith in the predictability of resilience, while concomitantly resilience re-crafts what is to be predictable. This paper therefore explores how predictability and resilience are intertwined in climactic/ecological arenas with some comparison to psychology as a contrast.

Chair: Darcie DeAngelo, McGill University

120. Critical Approaches to Cybersecurity
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Kent
The proposed panel considers the contributions that science and technology studies (STS) can offer to the study of cybersecurity, and how studies of cybersecurity can in turn inform and extend STS. As governments, corporations, and civil society organizations increasingly debate and contest the outlines of new forms of cybersecurity practices, STS scholars can offer critical and historically-informed accounts that reveal the contingency and sunk politics that are embedded within novel security interventions. The panel draws on diverse methodologies and case studies to examine the formation of a range of different standards and institutions. At these critical moments, as the papers note, core questions regarding the definition of cybersecurity are open to multiple competing interpretations. In these formative moments, the scope of what is included (or excluded) within the ambit of cybersecurity—the types of artifacts and practices that articulate as vulnerable and in need of protection—begins to take shape. Importantly, in these moments of creation, security interventions work to organize power and social relations in ways that can become durable and obscured over time. STS offers an opportunity to engage in infrastructure inversion and push to the fore the assumptions, values, and power that rest beneath the scrim of novel cybersecurity practices.
Regulating the resilience of complex systems — Evidence from embeddedness of metrics. I argue that cybersecurity metrics are science and technology studies that underscores the social prevent major breaches. Why haven’t cybersecurity metrics complex and evolving sociotechnical system which resists the when strong encryption technologies are made available on a commercial, and unchecked, basis.

Participants:

A Valuable Flaw: The Creation of a Market for Software Vulnerabilities Ryan Ellis, Northeastern University

In 1995, Netscape launched a novel program for its new web browser, Netscape Navigator 2.0: It announced that it would directly pay users that discovered and reported new bugs in its software. What was unique in the mid-1990s, is now ubiquitous. In the ensuing two decades, bug bounty programs have become widespread. Hundreds of companies and organizations—ranging from Google, Microsoft, Mozilla, the Department of Defense, and United Airlines—now offer monetary rewards for reported vulnerabilities. Thousands of researchers report bugs annually, earning rewards that can, in some instances, total over $100,000.

This paper critically examines the creation of a market for software vulnerabilities. Rather than seeing the creation of the market as natural or inevitable, the paper locates the creation of a market at the complex interaction of ideology, political economy, and technological affordances. The paper considers how the creation of a market has partially colonized earlier forms of non-market activity and it considers the broader implications of the rise of the market. The paper argues that the creation of the market may, in the long-term, undermine cybersecurity.

Governing by Numbers: Metrics and the Irreducible Uncertainties of Cybersecurity Rebecca Slayton, Cornell University

Metrics play a central role in efforts to govern cybersecurity. They are used to detect intrusions, certify products, assess risks, and ensure compliance. Yet cybersecurity metrics have failed to prevent major breaches. Why haven’t cybersecurity metrics proven more effective? This paper builds upon scholarship in science and technology studies that underscores the social embeddedness of metrics. I argue that cybersecurity metrics are of limited use in a modern, command and control model of governance for two reasons. First, what we wish to secure is a complex and evolving sociotechnical system which resists the external imposition of measurement systems. Second, security is an uncertain and elusive property that we cannot measure directly, and that we only estimate by its absence. Using the history of the U.S. government’s efforts to measure and improve the cybersecurity of its federal bureaucracy, I show how these features have thwarted efforts at a command and control style of governance. Nonetheless, I argue that metrics have been useful for local learning, suggesting the need for new conceptions of the value of metrics and of governance.

Assessing the New Information Society: A Typology of Encrypted Information Flows and their Human Risks Quinn DuPont, University of Washington (Information School)

This study identifies a new kind of information society, one in which cybersecurity, cryptography, and cryptanalysis technologies play a key role. Building on recent work in STS, media studies, and public policy debates, I assess the recent trend towards “ubiquitous encryption” by developing a typology of encrypted information flows. I argue that by understanding these technical and infrastructural bases of dominant social drivers, we are in a better position to understand how essential human categories of activity and being are changing. This study organizes and then problematizes the ways that communication, monetary exchange, law, politics, and social organization occur when strong encryption technologies are made available on a commercial, and unchecked, basis.

Regulating resilience of complex systems — Evidence from critical infrastructure cybersecurity standards Aaron Clark-Ginsberg, Stanford University

Resilience is a key approach for managing the risks for critical infrastructures and other complex systems facing rapid technological advancements. While the characteristics necessary for resilience are known, it is unclear how regulations can enhance resilience. In this article, we review the effectiveness of the North American Electric Reliability Corporation’s Critical Infrastructure Protection (NERC CIP) standards, a set of cybersecurity regulations for the United States electric power grid, in facilitating the resilience of the grid to withstand cyberattacks. Using primary evidence, we find that the NERC CIP standards have had positive impact on the resilience of the grid but have confronted certain challenges in their influence, scope, and adaptiveness. This suggests that regulations can play a crucial but limited role in governing the resilience of complex systems.

Market Based Risk Management through Cyber Insurance Trey Herr, Harvard Kennedy School

What explains the emergence of a market for cybersecurity insurance? This paper looks at the interaction between state regulators and the private sector in developing and enforcing cybersecurity standards. There is a tension between the objectives of private sector actors and public regulators. This analysis attempts to bracket this tension by treating the market as an example of private governance. The paper then evaluates the extent to which the emergence of insurance is a product of state failure vs. private actors seizing initiative. Over the whole, cyber insurance appears to be an effort by private actors to manage uncertainty by transferring the risk of a breach or compromise. These risks of an intrusion or attack are fluid and open to competing interpretations amongst a diversity of actors. There is limited data in the historical record and security responses takes place in a constantly evolving technological context. Synthesizing previous state efforts to create standards with literature on private governance and a novel comparative case study with logging standards, the paper examines the history and process of insurance. It argues that market driven enforcement mechanisms were key to providing financial benefit to companies willing to lead in the governance process and central to resolving a fundamental tension between the state and private actors.

Chair: Ryan Ellis, Northeastern University

121. Studying Data Critically III

Traditional (Closed) Panel 2:00 to 3:30 pm
Sheraton Boston: Floor 5 - Riverway

The goal of this track is to continue to deepen and expand the development of critical data studies within STS. STS research has investigated the ontological and epistemological (Craig and Thatcher, 2014; Kitchin and Lauriault, 2014; Leonelli, 2015), social, ethical, philosophical, and sociotechnical (Neff and Fiore-Gartland, 2015; Seaver, 2015; Beer) consequences of the emergence of data and computational practices as processes of contemporary knowledge production. This panel track invites scholars who are investigating the epistemological challenges that data scientific processes of knowledge production present to more established applications of scientific methods. We invite papers that investigate how data science is augmenting, subverting, inverting, and otherwise altering the way knowledge production operates. In particular, we are interested in domains including astrophysicists, genomics/proteomics/precision medicine researchers, neuroscientists, agronomists, ecologists, political scientists, sociologists, business and financial analysts, mathematicians and artificial intelligence researchers. Methodologically, we encourage papers that utilize quantitative and qualitative methods, including standard and trace ethnographic approaches. We invite: 1. Situated case studies of data science in action in particular domains especially the sciences. 2. Efforts to “provincialize” (Chakrabarty, 2007) the current mainstream data/computational narratives and provide space for expansive data discourses. 3. Work that offers a clear articulation of data science studies situated within a Science and Technologies Studies theoretical and empirical context. 4. Methodological considerations of the digital and analog toolbox necessary to conduct multi-sited, trans-disciplinary, humanspace ↔ bitspace research.

Participants:

Data Talk: Metaphors of an Epistemological Landscape Claire D’Elia Maiers, University of Virginia

The ways in which we talk—our language, turns of phrase, and metaphors—tell us something about our culture and how we see
and experience the world. Likewise, the ways in which people talk about data reveal and inform our natural conceptions about the capabilities of data science and analytics. This discourse, or “data talk,” as I call it, is as instructive as it is reflective. It provides the possible imaginaries through which people—especially novices, non-specialists, and the public—come to grasp data’s abilities and role in generating knowledge. Drawing on 28 interviews with data scientists, a content analysis of 33 data analytics white papers, and ethnographic observations of data scientists at work, I examine the metaphors that infuse the discourse of data. This analysis allows me to reveal what data is and how it relates to truth claims according to the imaginary of data talk. I show that data talk reinforces ideas about the objectivity of data, obscures the existence of those who produced the data, and facilitates certain expectations about data ownership and use. In addition, I find that the metaphors of data depict a particular relationship between data and knowledge claims, one in which truth and knowledge lie in the details of the data itself. I conclude that, due to its potential to shape our broader culture, examining data talk is central to a sociological account of data science and a key to success in advancing protective data policies and the ethical orientation of data scientists.

Data Upstream Sarah Catherine Inman, University of Washington

To understand the state of Alaskan salmon and people, there is a need for data sets that are spatially and temporally distributed. The heterogeneity of this data contributes to potential for data limitations. This paper argues that limitations to data collection, particularly in remote regions, causes errors to be propagated downstream when utilizing data for big science initiatives. It is also problematic when many of the data used were not collected with big science in mind. As such, this paper addresses reproducibility issues by looking at how domain scientists and data scientists work together to resolve measurement errors, technological failure, and gaps in data availability. For example, data scientists and domain scientists worked together to discover why Chinook salmon in the Good News River in 1994 were unusually smaller than all other years. They concluded that the anomaly was due to a measurement error (recording in cm rather than mm or recording juvenile rather than adult salmon). In addition to reproducibility concerns are issues with the knowledge produced by synthesis science. It is not simply that measurement errors are propagated downstream, but that new knowledge is created, knowledge that erases context in exchange for synthesis. As such, studying the different ways that data extraction and technological use shape knowledge claims is of interest. This research looks at the National Center for Ecological Analysis and Synthesis (NCEAS) and the study of Wild Alaskan Salmon. As global challenges present complex problems, fields such as ecology are increasingly more focused on producing synthetic research, typically with the assistance of organizations such as NCEAS. By studying the specific methods and instruments used to count, measure, and produce knowledge about the salmon, we address questions such as: How do data limitations affect the final research product? What can be learned about collaborative scientific work by following the data? How can following the practices of synthesis science lead us back to the object, in this case salmon? How does the data capacity of NCEAS affect the types of questions researchers ask? The contributions of the research are two-fold. First, the research provides detailed accounts of how data science and domain science intersect. Second, this paper provides a critical look at the STS methods for critiquing big data initiatives.

Organizational Tensions in the Quest for a Data-Driven Tax Administration Bastian Jørgensen, IT-University of Copenhagen

This paper explores the organizational logics that are a part of a strategic goal to become a data-driven organization. Being data-driven implies a belief in data and its ability to help solve a range of organizational challenges, but what does this mean in practice and what challenges arise in the process? In the Danish Tax Administration it is a strategic goal to become a data-driven tax administration. A number of things this has resulted in a new IT department referred to here as “data & analytics”. The department’s goal is to produce analytical methods and data models to be used in the wider organization. The department though, has experienced challenges when they attempt to integrate data models into the organization. In this paper it is hypothesized that the challenge of integrating data models from one department into the wider organization can include differences in organizational logics across departments. The concept of a data-driven organization and organizational logics will be explored through ethnographic methods of participant observation and interviews. The fieldwork will have its point of departure from the “data & analytics” department, and follow a data models “lifecycle” from development to the integration into the wider organization. Focusing on the tensions that arise in different phases of the “lifecycle” and across different departments may reveal differences in organizational logics. This paper seeks to contribute to STS through investigating the epistemologies associated with data in a public organization, and insights into the concept of a data-driven organization.

Chair: R. Stuart Geiger, UC-Berkeley

122. Tour of “The Philosophy Chamber” exhibition at the Harvard Art Museums

Special Event

Sheraton Boston: off-site event

2:00 to 5:00 pm

Please join us on a visit to the Harvard Art Museums for a private tour of the current exhibition, “The Philosophy Chamber: Art and Science in Harvard’s Teaching Cabinet, 1766-1820.” The exhibition focuses on the collection and space that played a vital role in teaching and research at Harvard, and also served as the center of artistic and intellectual life in the greater New England region for over 50 years. More information on the exhibition can be found here: http://www.harvardartmuseums.org/visit/exhibitions/4916/the-philosophy-chamber-art-and-science-in-harvards-teaching-cabinet-1766-1820. Ethan Lasser, Theodore E. Stebbins, Jr. Curator of American Art and curator of the show, will lead the tour of the exhibition at the Harvard Art Museums in Cambridge. The afternoon tour will immediately follow the paired lunchtime materials workshop, “Image, Material, Transfer.” Please register in advance here: https://goo.gl/forms/KHNJ7FJ0KQmUyiHs1. Registrants will receive a message with further details about meeting at the hotel; we will travel together to the museum. Please note that participants will be responsible for the cost of their transportation to and from Harvard Museum passes will be provided. The tour will be capped at 30 participants. Participation in the workshop, though encouraged, is not required to attend the tour.

Chairs:
Grace Kim, Massachusetts Institute of Technology (MIT)
Ethan Lasser, Harvard Art Museums

123. Coffee Break

Break

3:30 to 4:00 pm

Sheraton Boston: Foyer

124. Cryo (In)Sensibilities: Reproduction in the Age of Ice II

Traditional (Closed) Panel

4:00 to 5:30 pm

Sheraton Boston: Floor 3 - Beacon A

Reproduction has entered a new preservation age: In the face of serious disease, reproductive tissue can be preserved for later use; egg freezing is, at times, offered as a company perk, while men training to become chefs are encouraged to protect their gametes from the heat of the kitchen by cryopreserving them. In Israel, parents can legally inherit their dead son’s cryopreserved sperm, while parents located in the West imagine the products of their fertility travel—the embryo as a frozen sibling temporarily residing abroad. Clearly, preservation technologies radically change our understandings of reproduction, including notions of reproductive time. By enabling people to procreate in other temporalities,
Participants:

"Cultural Instincts": Posthumous Sperm Retrieval Requests in Israel and the Beginning of an Implementation Process Ori Katz, Ben-Gurion University of the Negev

Posthumous sperm retrieval (PSR) requests are made in Israel for two decades. Focusing on a time frame in which the technology of PSR exists, and yet does not get wide public awareness, I examine the beginning of the technology’s implementation process as a result of the encounter of new medical technologies and culture. I suggest that "cultural instincts" - a deep concealed personal sense which is constructed out of certain cultural position and turns to action under specific circumstances - demonstrates a possible mechanism for the starting point of the implementation process. The research was based on in-depth interviews with people who made a request for PSR in Israel, including widows and bereaved parents. The requests for PSR were made without any of the seekers were explicitly informed of this technology. Instead, they explain their requests as a force majeure. I claim that the seekers’ interpretation signifies the intense encounter between technology and culture and the hidden character of the cultural instincts. Those instincts are created within a unique cultural platform of longing for genetic parenthood and continuity of the dead. As a result of entering a new status (in this case, bereavement), this longing turns relevant straightaway, so that the cultural instincts are activated. Those requests expose a particular aspect of a cultural and technological process which helps turning this longing from a metaphor into sensibility. Therefore, the case of PSR in Israel suggests that cultural instincts may influence the success of an implementation process at its first stage.

Life and Quality of Frozen Embryos: Uses of Images and Scores to Negotiate the Destiny of Embryos in a Center of Assisted Reproduction in Brazil Débora Allebrandt, UFAL

Embryologists use various techniques to determine or potentially calculate the quality of embryos produced in laboratory through assisted reproduction (AR) techniques such as In Vitro Fertilization (IVF). Recent researches have associated the quality of the embryos directly to their nesting potential in the uterus. This proposal is based on sixteen months of ethnographic research in a post-doctoral fellowship in which I address issues of intimacy, decision making and policies of science in a private AR clinic in south Brazil. The AR clinic in which I developed my research uses a technique called "graduate embryo score", such technique has become increasingly popular in Brazil. Through it, the embryos receive "scores" in three different phases of its development. That score is put below an embryo image and used by MD’s and clients to choose which and how many embryos will be implanted in the cycle of treatment. They also base the decisions on the destiny of supplementary embryos. In face of this practice, we propose to explore what are the impacts of the use of the duo "image/score" to negotiate the treatment for the health professionals who work in this clinic and also for the clients that, with the help of this information, take decisions about it. This discussion can’t be isolated from the scientific and political context that regulates, since 2005, the possibility of embryo donation to research and the institution, in 2008, of the National Embryo Production System in Brazil. In addition to addressing the implications of this technique in the client and clinical experience in the management and production of embryo knowledge, I will explore, inspired by works such as those by Bharadwaj, Thompson, Rose and Roberts, the intersectionalities in production and management of a policy of science, responsibility and ethics of the use and destination of embryos.

Freezing for the Future: Culturally Mediated Fertility Preservation Decisions in Trans Youth Moira Kyweluk, Northwestern University

Within the biomedical community, increasing attention to the healthcare needs of transgender and gender-nonconforming individuals has resulted in younger patients more frequently accessing medically-supported gender-affirming hormone treatment—that is, estrogen for birth-assigned males or testosterone for birth-assigned females. While access to such treatments is still limited in the United States, youth initiating gender-affirming hormones may experience impairment in gonadal function leading to infertility or biological sterility. Increasingly refined, available, and deregulated gamete cryopreservation (egg/sperm “freezing”) offers youth undergoing gender-affirming hormone treatment the potential of preserving biological fertility. Transgender youth represent a new population for whom reproductive technology may be beneficial, but the degree to which these technologies are important to and accessed by transgender youth is still unknown. This paper explores ethnographic data drawn from the Trans Youth Fertility Study. Through a series of semi-structured interviews with transgender youth ages 14-24 from diverse socioeconomic and ethnic backgrounds and separate interviews with their parents or guardians, this work explores how and when cultural and social identities inform medical decision-making to preserve future biological parenthood. I will explore the tensions and conflicting desires of youth and their families for accessing this technology, focusing specifically on the influence of cultural and religious identities and social resources for interacting with and understanding technologies not originally designed for transgender patients. Ultimately this paper asks a major question: How are transgender youth and their families redefining how these technologies can and should be used?

Inconceivable? Predicting Embryo Potential in Fertility Clinics and Embryo Adoption Risa Cromer, Stanford University

Pregnancy outcomes with IVF embryos are highly uncertain despite efforts to measure and predict their potential. Following the advent of human IVF nearly forty years ago, fertility clinics developed predictive techniques that try to sort out which embryos contain the greatest potential to establish pregnancy. The widely used method for “predicting pregnancy” in fertility clinics involves evaluating embryos based on morphological criteria visible through a microscope. Such predictive practices sort embryos into three main categories descriptive of their presumed conceivability: transferable, savable, or discardable. Transferable embryos are judged to be the most promising and transferred fresh into a uterus for their chance to establish pregnancy. Savable embryos are plunged into liquid nitrogen where they are banked for potential future use. For failing to meet the minimum developmental standards, discardable embryos are destined for medical waste bins. In 1998, a group of evangelical Christians began the world’s first embryo adoption program to challenge the predictive practices of fertility clinics and to present an alternative approach to managing the uncertainties of IVF. Embryo adoption proponents denounce the classification of IVF embryos according to their perceived conceivability, and champion instead the idea that all IVF embryos, regardless of clinical grading, deserve a chance to be born. Based on twenty-seven months of ethnographic research in Southern California within private IVF clinics and a Christian embryo adoption program, this paper examines the promises and perils of predictability within both kinds of organizations invested in helping their clients to become pregnant with IVF embryos.

Chair: Charlotte H. Krolokke, University of Southern Denmark

125. "Hidden Disasters": Unexposed Element(s) of Sociotechnical
matters in how the disasters are handled and managed, sometimes there are elements of a disaster that remain hidden, unclear, or unexplained. They may include the unexplored circumstances that led to the disaster, the “actual” causes of a “natural” disaster, the plight of the disaster victims, or a “hidden” agenda behind a disaster’s cleanup and mitigation efforts. “Actual” causes of a “natural” disaster, the plight of the disaster victims, or sociotechnical system. This open panel invites paper abstracts that compare two of these so-called catastrophes that resulted from the specific construction and organization of our sociotechnical systems. This open panel invites paper abstracts that critically examine unexposed factors of a disaster and/or the explanation of why these elements were initially “hidden,” or of disasters that occurred “unexpectedly” as a result of a specific arrangement and management of a sociotechnical system. Paper abstracts that compare two of these so-called “hidden disasters” are also welcome.

Participants:

Punctuated Equilibriums: The Co-Production of Institutions, Culture, and Wildfire Eric Kennedy, Consortium for Science, Policy, and Outcomes - Arizona State University

In many regions, wildfire is a central part of the culture and socio-political apparatus. In Australia, for instance, wildfire is represented in everything from traditional art to international governance institutions. In the United States, folksongs and literature (such as Norman Maclean’s famous book “Young Men and Fire”) memorialize fallen firefighters, while images of homes threatened in California – and the sociotechnical apparatus of CalFire emerging to stem the threat – regularly dominate the summer news. Yet, in Canada – a land defined by its massive, country-spanning forests – wildfire is not reflected to nearly the same degree in cultural touchstones or longstanding community and governmental organizations. In this project, part of a larger examination of wildfire policy in Canada, I examine this curious phenomenon. I argue for the emergence of a ‘punctuated equilibrium’ of wildfire, wherein fires enter the public consciousness in moments of particularly visible conflagrations (such as the massive Mt. McMurray fire in May 2016, which raged through the Canadian oil sands), only to quickly recede into the distant imaginaries of frontiers and the ‘natural.’ Moreover, I suggest that this phenomenon of the punctuated equilibrium is coproduced with a particular kind of cultural imaginaries (e.g., art, literature, and discourse) and sociotechnical institutions (e.g., federal agencies and firefighting organizations). The study of wildfire and its institutions and policy, I argue, can benefit directly from the application of STS theory and analysis. The case also urges STS to continue to examine and study a wider set of disasters and emergencies.

The Shipwrecked Case of Cijin 25 Ladies and the Stigmatization of Wooden Boats Wen-hui Anna Tang, National Sun Yat-sen University

In 1973, a ferry between the small island Cijin and Kaohsiung wrecked owing to overload. The ferry was packed with young workers rushing to the processing zone for work. Coincidentally, 25 deaths are all young, unmarried women. Following the folk customs at the time that the unmarried woman cannot enter family temple, so the city government made a collective burial and named it the Tomb of 25 Ladies. From the time, female ghost rumors spread in the local. In 1984, the underwater tunnel connecting Cijin and Kaohsiung City was completed to lessen the load of transportation at sea. In 2009, the government has forbidden the use of private small wooden boat served as ferries and compulsory acquired then destroyed the boats. From the point of view of intersection between gender and technology, the authors analyze how social context behind the shipwreck incident in 1973 resulted in small wooden boat to be stigmatized, and the myth of relatively unsafe of ferrying with it. We believe that the risk of using technical object was not only from a technical object itself. The participation of users in the social structure and their “vulnerability” such as gender and class factors, also strongly influenced the outcome of the interaction between human and technical objects.

Radioactive and On Fire: Living in an Uncertain Community Kristen Michelle Kale, University of Missouri-Columbia

In 2010, residents living near the West Lake landfill in Bridgeton, Missouri noticed an unfamiliar and chemical-type odor. Residents soon determined that the Westlake landfill complex, a Superfund site, containing illegally dumped Cold War era radioactive waste, was the source of the odor. Officials at the site stated that a “heat producing reaction” and/or “subsurface smoldering event,” was discovered in its south quarry and was being monitored closely. Furthermore, they claim that while the smell is inconvenient, the site is safe and remains contained, controlled, and managed. Residents remain unconvinced and worry about the health and safety of their loved ones and community as many people believe they are already experiencing negative health outcomes. This research project focuses on the residents who have turned to social media and public town hall meetings to make sense of living near what they have conceptualized as a landfill that is both radioactive and on fire. Within the online group, which has grown to over fifteen thousand members, they not only attempt to make sense of data and government reports but also regularly share information. By analyzing the online group and town hall meetings, this research focuses on how residents make sense of risk both past and present as they continue to live amidst environmental uncertainty. Specifically, this project pays special attention to the ways in which residents’ sense of risk is complexly woven within lifeworlds and in imaginaries of science, industry, regulatory agencies, and the state.

Ecological Cost Shifting - A Case Study of the Indian Shipbreaking Industry STUTI HALDAR, CENTRAL UNIVERSITY OF GUJARAT

More than 80 percent of the world trade occurs via sea route which implies employment of a large marine fleet. The shipbreaking industry is an ancillary to the world shipping business as all the end of life marine vessels meet their fate on the yards of developing countries. Hence this industry in India and other South Asian transition economies has emerged as a sinister form of garbage imperialism. Although shipbreaking is practised in 79 nations worldwide most of the heavy dismantling occurs in the South where this highly capital intensive industry is transformed into a labour intensive industry. The study explores how the shipbreaking in India results in silent disasters due to ravaging impacts on the environment and labour as well as local residents. It looks into the north – south rift in the shipbreaking technology, hence analysing the environmental and human costs of the shipbreaking industry in India. The study is based on extensive primary study of the Alang Sosiya Shipbreaking Industry along the western coast of India and it also analyses various secondary sources such as government publications and shipbreaking reports. It has been found that India is treated as a pollution haven due to its favourable geographical features and cheap and inelastic supply of labour coupled with lax environment regulations. Although, this industry generates economic gains in terms of revenues, mild steel and employment for around 1 lakh people in India yet it has substantial human and environmental costs associated with it. The study contributes to the STS literature as it reasserts the importance of the social-shaping of technical trajectories with reference to the Shipbreaking industry of India. It also expresses the needs for inducing safeguards and redressing the precarity of low-wage strategies.

On Decision-making and Preparedness of Japanese Government before and after the Fukushima Accident Masashi Shirabe,
Tokyo Institute of Technology

As is common with most countries holding nuclear power plants, Japanese government has respected ICRP’s recommendations to some extent. Therefore, radiation protection policies of Japan have been affected heavily by the recommendations. Nevertheless, if examined the elaboration of what have been done by Japanese government for radiation protections, there could be seen some “preferences” in what kind of the recommendations have been incorporated in its legal system. These “preferences” seemed to affect nuclear emergency preparedness, especially that for public exposure. To be straight to the point, the government failed to prepare actions, measures, and plans for nuclear emergency. Moreover, even after the Fukushima Daiichi Nuclear Power Plant accident, the government seemed to exhibit an analogous pattern when tackling public exposure in existing exposure situations. For example, the Nuclear Safety Commission published a report entitled “Basic concepts on radiation protections for lifts of evacuation orders and reconstruction of affected areas.” In the report, although NSC set reference level under emergency exposure situations as low as 20 mSv in one year, it avoided setting reference level under existing exposure situations. We cannot make a sufficient analysis about what was caused by that. However, risk controls have been confused even since declaration of “restoration” from the accident, and this confusion could be a product of such analogous pattern. In this presentation, first I analyze Japanese government’s reflections to changes in ICRP’s radiation protection standard and the report of (the government’s) Working Group on Risk Management of Low Dose Exposure. This analysis will show how the government tackled problems of radiation protections, specifically those for public exposure and shed light on the “preferences” mentioned above. Then, I summarize what happened after the report in a chronological table for understanding of consequences of decision-making and preparedness of Japanese government.

Chair: Anto Mohsin, Northwestern University in Qatar

126. Disabilities and STS

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon E

Participants:

The Lived Experience of Disability and the Detection of Fetal Impairment Nikaido Yuko, Meijigakuin University

While prenatal testing is utilized to confirm the presence of a disability in a fetus, as a matter of course, it is not possible to discover all disabilities. It may be said disability as the customary epithet of the prenatal testing as a category or the attribute. Clearly, the most important participant in prenatal testing is the pregnant woman. Moreover, a person with disability is participant as well because that the attribute was named by the prenatal testing. Considering progress in medical technology, such as NIPT and PGS, and speed at which these technologies reach application in the market place, technology providers and users must take seriously their argument from disabled people and investigate better ways apply medical technology. From the interviews with disabled people in Japan alive in the 2010s, this project concludes that the concept of disability as used in the context of prenatal testing is not one issue. It makes clear the origins of the fetus image of disabled people and find out another meaning of disability called “retrospective disability”. Disabled people, families with children with disabilities, people who hope to have children in the future, how diversely do they define the term "disability" or "fetus"? We need to consolidate these terms and share the terminology with others. Differences in image and the definition of the terms make it impossible to share the meaning. This project contributes to the foundation of discussion about the social and feminist issues of prenatal testing.

Feminist Disability Studies and STS: Bridging disciplines through an examination of caregiving Laura Mauldin, University of Connecticut

The bulk of this paper will be a theoretical discussion of the relationship between STS/feminist science studies and disability studies. As such, this paper will make the case for interdisciplinarity by presenting the theoretical “puzzle” of how and why to draw together the literature in disability studies and STS; it will overview reasons why the field of disability studies should expand into STS more often and more substantively, and then overview the conventions within disability studies that tend to be obstacles in doing so. The paper will then argue that an examination of caregiving practices may be a useful vector for bridging these fields, even as doing so means operating within the contested spaces between disability/illness and caregiving, which have been taken up by feminist scholars in disability studies, philosophy, and the ethics of care – but each in different and often conflicting ways. Although there are many intimate configurations of care to consider through a feminist disability studies and STS lens, this presentation will set the stage for a proposed ethnographic study of how health-related technologies infuse the intimate labor of caregiving when one partner is chronically ill. How do scientific thinking and health-related technologies infuse such intimate practices of caregiving? How might disability studies, STS, and caregiving literature be enhanced by a project that draws these fields together? The paper will end by arguing that new medical technologies change care work in unanticipated ways and restructure associated work practices, which has already been articulated in the STS literature. But thus far, such engagements in STS with these ideas have failed to account for disability and illness from a disability studies lens.

Facilitated Communication: Autism, Automatism, Authorship David Horn

Since the early 1990s, “facilitated communication” has promised to enable authorship among children with autism, among others, who lack the capacity to write. In its most basic form, a child points to letters on an alphabet board or depresses a keyboard while a “facilitator” steadies and supports the writing hand. While this technology of writing has been enthusiastically embraced by some parents and educators, it has also been subjected to a double critique: that it is dangerous (risking emotional injury to naïve parents, and atrophy of the child’s ability to communicate without assistance) and unscientific. Multiple psychological studies have claimed to “discredit” facilitated communication, pointing to suggestion and unconscious movements to establish the facilitator as author. This essay does not propose to (re)evaluate this writing practice, but instead to situate it in relation to the scientific debates and cultural anxieties that have surrounded earlier claims of extraordinary and collaborative writing—table turning, mediumistic writing, and graphical automatism. Whether produced in a séance, a clinic, or a psychologist’s laboratory, these forms of writing depend on complex forms of authorship, but the signs of their social and collaborative nature are systematically erased. In each case, the hand that writes (or helps to write) disavows authorship so that another may communicate (a spirit, an alternate self, a child with an intellectual disability). The debunker, conversely, denies the authorship of the communicating other. Both moves, I suggest, point to anxieties about the boundaries of the sensing self and the unitary nature of the author.

Chair: David Horn

127. Unsettled Futures: Science Fiction, Identity and the Making of Time

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon F

This panel looks at the stuff of future and futurity at the intersection of queer and postcolonial critiques. We look at how futurity is formulated through the production and deployment of objects at the physical and
practical levels. We question the making of time and the narrative of futurity in a postcolonial context. The first paper investigates the many materially incarnated in the African landscape, salvaging and recycling props shapes the consistent image of the postapocalyptic and embodied its ethic. The second paper looks at Muslim futurity and asks if there is a future Muslim. Looking at the making of Islam as an ethnoreligious identity developed at the intersection of science, race and coloniality in SF writings, it investigates Islam as an object of technoscientific future—made and unmade in technoscientific futurity. Turning to the making of time, the third paper investigates how time is assembled in the making of a past/future life as imprinted in rocks. Deploying ethnographic and queer methodological tools, it explores temporality as a medicin for projection, retrojection and extrapolation. In Tony, the third paper looks at the canoe as an object of time and future, and investigates how it functions as a repository of meaning that animates a past in thinking native American futurity. Here, the canoe is explored as a tool of future making in a departure from the western colonial settlements that breaks the dichotomy of past and present that confines the Native to the past.

Participants:

“Hokule’a is in the past.” Spacefaring Canoes and Indigenous Seafaring in Science Fiction and Future Imaginaries Eli Nelson, Harvard University

In 1992, a University of Hawai‘i student asked Lacy Veach, pilot of the space shuttle Columbia, about the differences and similarities between canoes and space travel. Veach responded, “Both are voyages of exploration. Hokule’a [a Polynesian seafaring canoe built in 1975] is in the past. Columbia is in the future.” And yet, the canoe has been taken up as a technology of future travel by both science fiction (SF) producers and scientists. In this paper, I analyze the canoe as a tool of future making for science fiction (SF) authors, filmmakers, and artists, and for western and native scientists imagining models of space travel. Iterations of the SF canoe vary from mainstream tropes of pre-contact Native Americans in space as a means of establishing cognitive estrangement to its creative crafting as an alternative nova in SF; a technological object, anthropological conceptions of time as linear, millenarian, continuous, and accelerative. Finally, I read geology, ethnography, and science fiction as textual triplets that use temporality (“going elsewhen”) as a medium for projection, retrojection, and extrapolation—for cosmic estrangement.

Judge Dredd’s Armor and The Gunslinger’s Gun: Movie Magic and the many lives of filmic weaponry in South Africa Jessica Dickson, Harvard University

This paper investigates “the movie prop” as a particular regime of objects from an ethnographic perspective. Siegfried Kracauer wrote of the film-studio in his Weimar Essays, stating “here all objects are only what they are supposed to represent at the moment: they know no development over time” (282). In contrast to this perspective I appeal to Arjun Appadurai’s notion of the “social life of things” to think about the many lives of movie props: from their making for a particular purpose—creatively crafted with materials at hand—to their salvage and radical re-contextualization for subsequent film-projects. By tracing the histories and trajectories of two movie props featured in “Hollywood” Sci-Fi films produced at The Cape Town Film Studios in South Africa, I illuminate their roles in the social processes of filmmaking at a particular site of international culture production. Judge Dredd’s body-armor from Dredd 3D (2012) and the Gunslinger’s gun from The Dark Tower (2017) provide two examples of objects created for science fictional violence and adventure; two technologies for men fighting imaginary battles cast against the trending sci-fi aesthetic of the Euro-American apocalyptic—an aesthetic now increasingly being Made in South Africa. I investigate the circumstances of these props’ creation, their material inspirations, their filmic representations and re-presentations, to show how these objects are re-made and re-framed for South African films. What stories do these objects tell about artistry, scarcity, labor and creation in this postcolonial context of production that is increasingly recognized in the popular imagination as “the look” of a post-apocalyptic ethic.

Origin Stories: Technoscience, Agency, and the Creation of Marvel’s Superheroines Kristen Koopman

In the world of Marvel comics, men can gain superpowers through their mastery of technology, their fervent scientific curiosity, and their selfless acts of heroism when their scientific
knowledge proves beyond even their own control. Yet women's origin stories have drawn different patterns in which women are bestowed abilities through being objects of technoscience, either victimized or passively saved by it. Drawing on literature from both comics studies and science and technology studies, this presentation will use close-readings to examine the origin stories of Marvel "legacy" superheroines who take on the mantle of previously existing heroes (often men) to uncover patterns in how these stories treat the intersection of gender, agency, and technoscience—particularly when compared to the male heroes that preceded them. By using legacy superheroines who have direct and explicit male superheroes to compare them to (heroes who typically have similar or related powers), this project will show the stark contrast along gender lines. Taking examples from multiple points in Marvel's publication history (such as the Wasp from the 1960s, Ms. Marvel from the 1970s, She-Hulk from the 1980s, and the recently-debutted Ironheart), I will show that Marvel has only recently begun to diverge from this narrative. This trend has implications for how women are positioned in media with respect to STEM fields and, I argue, performs a highly gendered sociotechnical imaginary by consistently showing men as active participants in technoscience at the moment of their empowerment, while women are depicted as passive recipients of their technoscientifically-given powers. This project also represents the researcher's first attempts to extend the theories of sociotechnical imaginaries to the realm of science fiction.

Chair: Sophia Roosth, Harvard University

128. Beyond "Triple A": Perspectives at the Intersection of STS and Game Studies

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon G

The cross-disciplinary field of video game studies has long focused on the products of the "hardcore" Triple A (AAA) video game industry. In many ways, this focus on AAA products makes sense; the larger game companies and their expensive games have commanded the economy of the video game industry. This panel, however, proposes looking beyond AAA games, to focus on other emerging aspects of the video game industry. Employing multiple methodological approaches and using STS as a baseline, each panelist considers a different aspect of the video game industry that exceeds and pushes back at the dominance of "hardcore" games. Topics on this panel range from casual and "freemium" games, to science and sports games. They also move beyond traditional stereotypes regarding the AA audience, showing how new technologies necessitate a redefinition of who plays games. Each of the papers reconsiders how non-AAA products, industries, and audiences sit in contrast to the AAA video game industry and revalues their promise to reform video game studies. Within the scope of the larger conference theme of (In)Sensibilities, we suggest that by pushing at the imaginary of what games are possible we can reconsider the importance, breadth, impact, and possibilities of an industry that is still in nascent form.

Participants:
Who is Player Two and How is She Changing Video Games?
Shira Chess, University of Georgia

Who is Player Two? If Player One is the stereotypical "hardcore" (read: masculine) video game player, characterized by first person shooters, sports, and role-playing games, we can understand Player Two as the stereotyped feminine gamer, typically depicted as playing casual and mobile games. In this paper, I operationalize the term "Player Two" to consider the rapidly fracturing video game industry. Where, once, this industry seemed to be primarily catering to a singular audience (Player One) it now answers to multiple audiences and kinds of games. Player Two, I argue, is necessarily associated with feminine style, both in game content and design. Using interviews with game designers to build a better picture of how this new gamer is conceived within industry contexts, I complicate how we can understand the emergence of Player Two. In particular, by focusing on casual games such as time management, invest/express, hidden object, and match-3, it seems we can learn a lot about how the industry designs their conceptions of this emerging gamer. While Player Two is constructed with feminine expectations, I argue that other identity baggage is a byproduct of her designed identity, creating an idealized gamer who is necessarily white, middle class, heterosexual, cis-gendered, and abled. By combining interview data with other textual resources, I ultimately argue that we can use the shadow of Player Two to construct a more inclusive video game market for all.

Framing AAA: Media Coverage of Industrial Change in Early 2000s Video Gaming
Amanda Cote, University of Michigan

In the mid-2000s, the success of the Nintendo Wii and the rise of mobile, social, and casual games precipitated the reconsideration of many video game industry assumptions. Imagined audiences, the qualities of a "good" video game, and more expanded as new types of players latched onto new types of games and game technology. In turn, some researchers and journalists began to question the dominance of AAA gaming studios, the industry's largest companies and established bastion of power. Given the rising prominence of other types of games, they wondered, would AAA continue to be a cornerstone of the industry? And if not, what would that mean for gaming? This project uses a thematic analysis of popular and trade press (2000-2010) to explore changing discourses around the role of AAA and to assess how press coverage links to cultural anxieties regarding gaming's future. As Consalvo (2012) points out, many gamers see gaming as zero-sum, where more attention to casual, social, or mobile games necessarily leads to less attention for the "hardcore" games. In my analysis, AAA audiences are used to and prefer. I argue that this zero-sum perspective is related to how gaming press covered new types of games and players, framing them as direct competitors with AAA. This has then driven traditional game audiences to fear change and to exclude new audiences, as a means for maintaining hegemonic control over gaming and its future. As such, gaming press coverage directly relates to the sexism, racism, and harassment gaming has struggled with in recent years.

Play-Fighting: Bringing together Game Studies and Sport
Joseph Fordham, Michigan State University

The field of Game Studies has, in the past, been largely defined by the study of digital computer games. Researchers have continued to push the field of Game Studies towards a variety of games including mobile and non-digital forms. Despite this expansion, there is a clear scarcity of research attempting to approach the study of sports within a Game Studies framework. The rise of eSports and select works on sport-based video games have only scratched the surface of the possible connections between these fields. Scholars within Sport Studies have long dealt with many of the same questions as Game Studies, such as how to define the game space or the larger impact of sports and games on society. The inclusion of sport within Game Studies is an opportunity to further challenge and apply our own understanding of games while also bringing together a wealth of knowledge from two fields studying very similar phenomena. This project looks to the rise and continued development of a non-traditional sport, Mixed Martial Arts (MMA). Particularly, how MMA's mainstream acceptance was the result of the constant development of policy and rules to both fit and help shape societal understandings of sport and, by extension, games.

Playing Science: From Exploitationware to Careware in Science (Crowdsourcing) Games
Casey O'Donnell, Michigan State University

Increasingly games are being seen as means through which to both educate (particularly young) people on scientific processes and systems. Further, numerous "crowdsourcing" technologies, which leverage networked digital technologies to enable biochemists and scientists to bring research problems to non-scientists for participation and engagement. While previous studies would indicate that scientific practice and knowledge
construction is often imbricated by software and hardware; increasingly, new tools are being developed to incorporate and facilitate participation users who may or may not be scientists and so harnessing a distributed networked labor force. These tools place basic biochemical principles into their underlying design and implementation, yet provide interfaces that allow users to playfully undertake, through trial and error, experimentation, processes that are core to deciphering a protein or nucleic acid’s underlying structure. This presentation presents empirical material from a two-year ethnographic inquiry into the world of Fold.It and EteRNA, two science crowdsourcing games and presents an account rooted in both Science and Technology Studies, but also in the tradition of the Anthropology of Care.

Chair: Shira Chess, University of Georgia

129. The Politics of “Facts” and Science in an Age of “Post-truth”
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon H

Is there something new about the political relation to “truth” in the Trump administration? Have we now entered what some have called a “post truth” era (Sismondo 2017), or is this simply an extension of existing attacks on expertise in politics? Political responses to the Trump administration’s “alternative facts” have largely taken the form of reflexive defenses of “science” and “truth,” or even blaming post-structuralism and science studies itself for these developments. This panel asks, what would a more adequate account of the rise of “post truth” politics look like? Is an alternate mode of refutation, one that does not rely upon an unreflective notion of science as “truth,” possible? This panel advances an accounting of contemporary problems that is both inductive and deductive, toward the development of a distinctively STS approach. In specific domains such as media and academia, we can trace a genealogy of eroding trust through scandals (false reporting, greedy doctors) and the rise of outsider heroes (rightwing talkshow hosts, fringe scientists discrediting all but themselves), within a new media ecology. Looking at current events in US politics, scientific industries, and global events, we can deduce certain more general features of the contemporary politics of truth, attending to how something enters into the play of true and false, and why. This panel brings together five individual papers that each approach these questions inductively by focusing on specific cases or questions, with the goal that the panel as a whole can put its evidence together toward a more comprehensive assessment.

Participants:
‘Post-truth’ and the indirect direction of political speech
Javier Lezaun, University of Oxford
In his essay “What if we talked politics a little?,” Bruno Latour argues that politics, understood as a particular manner of speech, is always characterized by “disappointment.” Political speech, he argues, operates by introducing a detour or distortion between a collective and its expectations of reality. In the process, it gathers a new, temporary public into being. Accurate representation of matters of fact – what Latour calls the “the rectilinear way of faithful talk” – is antithetical to politics, for it interrupts the continuous work of group re-definition and re-materialization. Some disappointments are more disappointing than others, however, and the current political situation forces us to push this line of inquiry further, and link it more explicitly to other STS concerns and sensibilities. In particular, in this paper I will argue that STS needs a more diversified understanding of political truth-making, a typology of the detours of political speech that goes beyond the binary of straight lines and curves presented in Latour’s essay. Drawing on François Jullien’s work on styles of indirection in aesthetic and political rhetoric, I will argue that “straight talk” is one of the defining characteristics of the “post-truth” condition, and that a sense of the complex and convoluted nature of truth-making is one of the key contributions STS can make to the current debate.

Viral Conspiracies: Rumour and Emerging Infectious Diseases in Brazil’s Media Ecology
Meg Stalcup, University of Ottawa

This paper examines two controversies over the “truth” about terrorism from the first months of the Trump administration: the false claim that the media had “ignored” 78 major incidents of terrorism, and the attempts to discredit counterterrorism adviser Sebastian Gorka. What both of these share is that they were not strong facts—both Gorka and the claim about the media were fairly easily discredited—the first by a coterie of terrorism experts and other academics who dissected his training, his dissertation, and his credentials; the second by a repeated exercise in assembling and republishing evidence to the contrary (that is, that newspapers had, in fact, covered each of these incidents). While STS has focused extensively on the construction of truth, facts, and expertise, this paper looks instead at the question of how and why discredited facts and experts—and perhaps even, or especially, those that are seemingly easily discredited, may still have significant effects. In the case of “terrorism” knowledge, discredited facts and experts seem to repeatedly re-emerge, no matter how often they are discredited. What are the conditions under which this phenomenon occurs, and what conclusions might we draw from it?

Chair: Lisa Stampnitzky, University of Sheffield
Discussant: Daniel Hirschman, Brown University

130. Artificial Intelligence: Mediating Coexistence
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Berkeley

The advent of Artificial Intelligence (AI) constitutes the most relevant appropriation of technologies in the contemporary world. “Intelligence” has historically been an exclusive attribute of humans. With AI emerges nonhuman entities endowed with intelligence, in some cases, superior to human intelligence itself. For the first time in history, humans have created something over which they have no control. Experts cannot predict exactly how AI works and how it will behave in the future, leading to the idea of “risk” in AI. From an ethical point of view, two main themes stand out: (a) human control over intelligent systems; and (b) intelligent systems vs human values (moral learning, machine ethics). From these two major themes derive other sub-themes, such as: (i) the sense of anthropocentric perspective; (ii) the viability of intelligent systems that learn human behavior; and (iii) the assumptions of an anthropocentric nature of intelligence.
attributes such as consciousness and intuition; (iii) the feasibility of intelligent system autonomy and the limits of human control; (iv) the challenge of dealing with the complex system unpredictability; (v) the meaning and threats of a "super intelligence"; (vi) the division of functions in the future society; and (vii) the role of government, the private sector and academia (terms of collaboration). Related to the conference theme emerges the question of how to connect human sensitivity with the "sensitivity" of intelligent machines. This panel invites submissions on how we can theorize and mediate this coexistence.

Participants:
Making Artificial Intelligence Unartificial: A Case Study on Gil Medical Center in South Korea
DAEUN LEE, Science and Technology Policy Institute
In South Korea, healthcare industry aggressively adopts artificial intelligence. In September 2016, Gacheon University Gil Medical Center has adopted Watson for Oncology, IBM’s artificial intelligence system, for the first time in South Korea for cancer treatment. By suggesting “best” cancer treatment options, Watson influences on patients’ decision-making on what treatments to choose. Since Watson also affects choices of treatments, we might come up against new types of ethical issues such as responsibilities for diagnosis or treatments. Despite this potential, it is rarely found that patients who are actively raising ethical issues. Does it mean that patients are not sensitive enough to identify ethical issues? Or is it that they somehow find a way to understand what Watson means to them? Whichever way it is, artificial intelligence appears to be in harmony with doctors at the hospital so far. What does make it look unartificial that patients receive Watson’s suggestion? This study aims to examine the ways ethical issues are unproblematized in hospitals. In what physical arrangement is Watson installed inside the doctor’s office? In what way do doctors utilize Watson, when consulting patients? Finally, how are this coexistence mediated?

Science Automated: Field Notes From a “Science Automation Laboratory”
Vlad Schüler-Costa, University of Manchester
This paper draws from ongoing participant observatory research within a laboratory that uses robotics and artificial intelligence to automate biological research to report on how AI is being used to: (1) read and decipher scientific literature; (2) propose microbiological experiments to test its knowledge; (3) interpret the results of said experiments. I argue that, rather than ‘replacing’ human scientists, AI is better seen as a tool (at worst) or a partner (at best) in the conduction of science – at least in the foreseeable future. I also relate the debate carried out by Slezk et al in and following the November 1989 issue of the Social Studies of Science journal on whether computers would provide ‘bias-free’ scientific knowledge.

Building Learning Machines: Machine Translation as a Site in Which it Became Thinkable to Calculate “Meaning”
Aaron Louis Plasek, Columbia University
Machine learning (henceforth “ML”) systems are increasingly deployed to classify individuals, imagine communities, and assert judgments. The construction of these profoundly material systems alter how we conceptualize the very tasks to be emulated: to wit, to argue that a ML system performs “at parity” with human performance, new ways to quantitatively codify human performance must be first be developed. ML is thought to have eclipsed AI research to become one of the most important fields within the discipline of computer science. However, the narrative of “the rise of machine learning” is historically false: ML and artificial intelligence were both established in the 1950s, and ML research has always fielded a large and vibrant community of researchers relative to artificial intelligence research. That both public and disciplinary perceptions of ML diverge from the historical reality can be partially explained by the state of historiography of ML—namely, that there are no proper histories of the subject. This paper articulates how ML researchers understood their work as distinct from that of artificial intelligence, despite the fact that the same individuals often produced work in both subjects. In offering an alternative historical account of ML, this paper will further consider how certain practices of computation became conceivable as a “solution” to problems of meaning that had not previously been thought as amenable to numerical representation or algebraic manipulation. Early 1950s “machine translation” research is illustrative in that researchers began to ask themselves about whether they had the right model and enough data to perform an “adequate” translation. Understanding how machine translation researchers justified their answers regarding the appropriate model and data set enables us to better articulate the technical and rhetorical strategies that ML researchers have subsequently used to justify the efficacy of ML in new contexts.

Algorithms, Words, and Valuation
Anna Jobin, Université de Lausanne
As their presence is becoming ubiquitous in everyday life algorithmic systems have attracted increased scholarly scrutiny both as objects to study and as objects of study. This paper focuses on Google AdWords, a very particular subset of Google’s algorithms that attributes monetary value to words. It suggests to explore Google AdWords through the narratives of people whose career depends on it: online advertisers. Indeed, members of this heterogenous professional group share the common activity of interacting with algorithmic systems for a living. What are the ways in which these systems take shape in the discursive demonstration of the advertisers’ work? What is their role in the performance of professional expertise? Based on empirical data this paper analyzes the production and use of algorithmic systems as discursive practices by people who are sustained by – and simultaneously sustaining – the existence of these systems as tools of valuation. It contributes to the growing body of work in STS dedicated to the study of cultural and political aspects of computational technology in general and algorithmic systems in particular.

Chair: Dora Kaufman, Universidade de Sao Paulo
Discussant: Dora Kaufman, Universidade de Sao Paulo

131. Academic Careers: Gaining Independence in Different National Contexts
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Clarendon
A crucial step in academic careers is the transition to a position in which one can conduct independent research. Standards for hiring into tenure-track jobs, tenure, and promotion are each based on demonstrated ability to work independently and to support a research program. From the perspective of science policy, early-career researchers are seen as sources of the original ideas and boundless energy necessary for transformative science and innovation. Yet current research careers in many countries are characterized by longer phases of intellectual gestation: research conducted under direction of others (e.g. as a postdoc) and delayed moves to independence. Positions that formally grant the right to conduct research independently grow increasingly scarce. In some countries, science policy responds by creating formally independent positions or by limiting the time researchers can spend in dependent positions, with varying success. How do young researchers cope with extended dependence and strive to achieve and maintain some form of independence under changing conditions in different career systems? How do national contexts differ in supporting the transition process towards independence, e.g. in terms of career positions offered, project funding opportunities or evaluation processes? In which career phases does it happen and why, and which consequences has it for the content and conduct of research? What are the implications of extended intellectual gestation for recruitment of talent and for increased diversity in STEM fields?
Participants:
A Path to Academic Independency and How to Early Stage Researchers Describe It Nina Jung, Universidad Nacional Autónoma de México

Academic careers start long before achieving a permanent post at a university. Depending on whom you get along or work with, or where you move, can define to a great part where you stay. However, people and places also determine how independently especially early stage researchers (ESR) can unfold. As this also depends to a high extend on national and local science policies, and the universities itself, this article pretends to show with the example of ESR at a public Mexican university, the transition process from being an academic descendent of a senior researcher to being an independent one. Based on first-hand experiences of ESR (with different nationalities) who have been internationally mobile during one or several stages of their academic trajectories (PhD, postdoc, or even before that), this article offers a comparative perspective between particularly European and Mexican experiences. Within the field of earth and life science I will explore the following concepts that young scholars face and have to cope with: postdoc-advisor relations, (problems of) institutional affiliations, (lack of) research funding, (pressure for) publications, collaborations with other colleagues, and finally the consolidation of an own research line. This raises critical questions about the role of postdoctoral advisors on the one hand, but on the other one about the position and identity of postdoctoral researchers, and how these two aspects have an impact on national science culture in general. Using narratives and social network analysis this transition process will be demonstrated and analyzed.

The Cognitive and the Social Patterns in the Emergence of a Scientist Mery Hamui, Universidad Autónoma Metropolitanana; Alejandro Canales, UNAM-IISUE

The aim is to show that the social and cognitive patterns in the process of socialization and knowledge generation in a field of studies are interdependent. The emergence of a researcher takes place in the last phase of the doctoral program and in the early years after completing it. In this period is when the Early Career Researcher is expected to be recognized and acknowledged as a scientist and in a line of knowledge. For it, it is necessary to publish, make use of the cognitive and social guidelines in order to develop skills and strategies and to build networks. In every field of knowledge the way of working arrangements, publishing and building networks is done differently. The purpose is to discuss how to engage with the future considering the cognitive and social patterns to opportunities and strategies by young Mexican early career researchers, so they can join their scientific community based in their experience through the process of immersion in their field. Through a qualitative approach, we analyzed 24 interviews of Mexican Early Career Researchers graduated in the last five years in three doctoral programs with high academic development in physics, biochemistry and social sciences. Our contribution to STS is to highlight how attitudes, organizing activities and integrating cognitive styles are demarcated in social representations and in the way to set up conditions, contribute to knowledge and be recognized by the disciplinary community.

Why Is There a Gap Between the Formal and the Actual Independence of Early Career Researchers? Grit Laudel, TU Berlin

In many research systems, science policy strives to increase early career researchers’ independence from senior researchers. In Germany, the independence of early career researchers has been a concern of science policy for a long time because Germany’s prototypical chair system defines researchers on university entry positions as conducting dependent research and tenure on independent professorial positions is granted very late. This is why in the last two decades new types of positions were introduced, namely junior professorships and junior group leader positions. I will empirically demonstrate that this approach failed in many cases because the authority relations in which researchers are placed still limit their opportunities to conduct independent research. A look abroad shows that this is not a specifically German problem. It can be found in the Dutch system as well because the Dutch university entry position is tenured but does not necessarily enable independent research. I present the systematic reasons for these actual dependencies of formally independent early career researchers in experimental physics. These observations suggest that we need to go beyond formal descriptions of positions. The actual degrees of independence of early career researchers can be compared by looking at the system of authority relations the latter are embedded in and gauging the protected space they can build in this system of authority relations.

‘Taking One for the Team’: Articulations of Authorship in Nutrition Science Across Academia and Industry Bart Penders, Maastricht University

Nutrition science journals publish papers by authors from universities, governmental research organisations, food companies large and small, as well as contact research organisations side by side. Authors on a single paper may stem from two, three or all types of organisations. The meaning of these authorships to nutritional research professionals is remarkably different across organisations. This includes, but is not limited to evaluation practices, career development, organisational support and rewards or autonomy to pursue authorship. The author in nutrition science is neither a shared identity, nor a shared ambition. This paper dives into the social, economic and organisational context of authorship. Drawing from an ongoing series of interviews with junior, medior and senior researchers in nutrition science across Dutch universities, government research facilities, (contract) research institutes and food industry, it chronicles the developmental trajectories of authors and careers in the diverse institutional landscape in Dutch nutrition and the moral evaluations of the self and the other across the public-private divide. I explore the different articulations active researchers offer on the act of authorship and its consequences, its organisational role, how it is tied in with career development, audit practices and local responsible research practices (RRPs). Consequently, the paper aims to better understand the differentiation between practices of performing authorship in the context of intersectoral collaborative (or team) work and effects on the public establishment of dietary expertise.

“If He Got Excited About Something, Could He Do Wonders!”: Narratives of Required Interest for Success in Engineering Research Caitlin Donahue Wylie, University of Virginia

What does it take to be a good researcher? Universities and professors value undergraduate research experience as apprenticeship-like training and socialization in a STEM field. To understand how future researchers learn fields and professional and personal identities, I am conducting interviews and participant observation in two engineering laboratory communities that include undergraduate students. One emerging theme is professors’ and students’ belief in the importance of students’ “interest”, “enthusiasm”, and “passion” for research. Professors tell me that they select enthusiastic-seeming undergraduate applicants for lab jobs over those who don’t seem sufficiently interested. This practice implies a belief that students must be interested in the field or project to succeed in lab work and therefore in engineering research. The professors seem to assume that expressed interest correlates with motivation, work ethic, and ability. Accordingly, undergrads also tell me that their “interest” is an important reason for their choice to work in labs as well as a motivator for them to work hard. This belief that success is interest-dependent shapes a narrative of engineering identity as based on purely epistemic and somewhat self-indulgent motivations. Are today’s engineers therefore promoting Max Weber’s (1918) idea of the “passion” and “inward calling” required to be a scientist? Are they perhaps expressing the growing perception of undergraduates as consumers who must be
kept happy? I explore possible implications of this mindset in engineering culture, such as how it affects which students pursue engineering careers and how it compares with notions of passion in scientific and artistic identities.

Chairs:
Grit Laudel, TU Berlin
Ed Hackett, Brandeis University

132. 2017 Carson Prize winner: Adia Benton’s HIV Exceptionalism
Author Meets Critic
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Commonwealth
Chair:
Shobita Parthasarathy, University of Michigan

133. 2017 Carson Prize winner: Adia Benton’s HIV Exceptionalism
Author Meets Critic
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Dalton

This session proposes to look at ‘big science’ through the lens of research infrastructure. Large-scale research endeavours rely on infrastructure of a different kind than those at smaller scales such as: standardized databases, electronic preprint servers, data sharing facilities, centrally maintained software packages, technology platforms, communication networks and scientific equipment serving a world-wide community of scientists. Furthermore changes to infrastructure occur at a rapid pace, building on existing technologies and established modes of practice. With an interest in fields as diverse as computational art history, cancer research, experimental economics, and experimental high-energy physics, this panel proposes to investigate in detail the interrelation of infrastructure and epistemic practice and how both co-evolve in a situation of change. In what ways can research infrastructures and scientific practices be considered to be mutually constitutive? How is existing infrastructure shaping research agendas or vice versa? Which tensions arise when infrastructural tools from one field become implemented in another? These are some questions that will be addressed based on detailed empirical case studies. Associated issues of concern will include data politics (management, access, sharing, etc.), practices of standardization and customization, the negotiation of credibility and epistemic novelty (e.g. ‘non-discovery’), alternative forms of credit systems and peer review, the reconfiguration of scientific publics. Inviting a joint discussion in a comparative perspective, the session brings together contributions that address cases from the broad disciplinary spectrum.

Participants:
Standardization and integration in cancer research: Data infrastructures as actors in knowledge generation Regine Kollek, University of Hamburg; Imme Petersen, University of Hamburg

The rapidly growing amount of molecular and other data in biomedical systems research has led to the development of large computational infrastructures in order to facilitate management, access and sharing of data. Although such infrastructures are essential for research and collaboration, individual scientists as well as research institutions often neglect not only the challenges related to standardization, integration and management of data, but also the role of such infrastructures and the premises and goals they are built upon for knowledge generation. We hypothesize that such infrastructures are not mere service facilities to support research activities, but enable, and restrict research at the same time. Based on a case study in systems cancer research, we trace how data are standardized, processed and shaped by infrastructural requirements, how scientists use such infrastructures in research perceive standard operating procedures and which consequences for knowledge production (e.g. modeling) arise from it. We will argue that the understanding and modeling of biological systems is profoundly shaped by ICT technologies and their underlying conceptualizations. Hence a thorough analysis of the role of computational infrastructures in biomedical systems research is required in order to understand their epistemetic presumptions and implications.

Negotiating credibility in large-scale research: The “750 GeV bump” at CERN Martina Merz, Alpen-Adria-Universität Klagenfurt, Austria

This paper explores how particle physicists problematize infrastructure in the process of negotiating and securing credibility for their results in a recent episode occurring at CERN. In Dec 2015 the two biggest experiments at the Large Hadron Collider independently announced results, illustrated by a ‘bump’ around 750 GeV of small significance, which indicated the possibility of ‘new physics’. The announcement was followed by a flurry of activity. Within two days, theoretical physicists had uploaded several dozen papers on the resonance at 750 GeV. Experimentalists in the ATLAS and CMS collaborations gathered additional data and continued their analysis. All were concerned with the evolving status of the 750 GeV resonance: would the observed excess become a ‘discovery’ of new physics or would it disappear, rendering the initial result a statistical fluctuation? (In August 2016, both experiments indeed declared that the bump had been a statistical fluke.) This episode provides a multifaceted study case for exploring the negotiation of credibility both within the confines of a collaboration and in the semi-public debate involving experimentalists and theorists. Drawing on interviews and a close reading of preprints, conference presentations etc. this paper will discuss to what extent and how research infrastructures of different kinds (instrumentation, analysis tools, data management, etc.) were addressed, problematized and probed in the process of securing credibility and assessing the state of affairs. The paper will also pay attention to how this episode brings to the fore the implicit and explicit norms and standards underlying experimental and theoretical practice.

Large (virtual) research infrastructures: the high-energy physics blogosphere and ‘non-discovery’ Sophie Ritson, Alpen-Adria Universität Klagenfurt / Wien / Graz

A comparison of two recent examples, the non-discovery of gravitational waves by BICEP 2 and the non-discovery of a 750 GeV particle at the LHC, reveals the large virtual communication infrastructures connecting arXiv.org and high-energy physics blogs that are utilised in the dissemination and review of results. Blog authors are often reluctant to publish anything that could otherwise find publication in journals due to a lack of institutionalised credit mechanism. However, this does not prevent the making of novel negative contributions, such as critique of results, which in traditional peer review have few institutionalised rewards. This paper explores each example as a case study where negative knowledge is employed both as an epistemic practice (review practices) and as an epistemic category (non-discovery as knowledge). In each case studied the proposed discoveries are potentially Nobel Prize winning. Furthermore, in each case the subsequent ‘non-discovery’ claim is arrived at through negative knowledge practices (i.e. practices that dispute claims) that occur prior to peer review and journal publication (as traditionally conceived). That is to say that the 750 GeV particle and the gravitational waves are proposed and then are considered instances of ‘non-discovery’ before appearing in the peer-reviewed literature. Such instances of non-discovery make for valuable material for STS researchers because knowledge claims of ‘non-discovery’ highlight alternative review practices. This paper argues that tracing the short lives of BICEP2’s gravitational waves and LHC’s 750 GeV
signal at arXiv.org and in the blogosphere reveals the interconnected virtual research infrastructures employed by high-energy physics.

Revisiting the Laboratory: From particle physics to experimental economics and back Helene Sorgner, Alpen-Adria-Universität Klagenfurt | Wien | Graz

In her work on epistemic cultures (1992, 1999) Knorr Cetina proposed a conceptualization of laboratories as constituted by a “reconfiguration of the natural and social order”. Laboratory sciences can thereby be distinguished by the technologies they employ to enactuate natural objects: while particle physics process signs, experimental social sciences stage their objects in laboratories that are virtually co-existent with experiments. Based on a case study of contemporary laboratory experiments in economics I want to challenge this distinction and argue that today’s social science laboratories and laboratories in particle physics have more in common than Knorr Cetina’s analysis allows for. Drawing on interviews and ethnographic observations, I argue that the development of a common research infrastructure in the form of computer networks and standardized software packages for managing participants and programming experiments has contributed to the maturation and institutionalization of experimental economics as a method and discipline. Maintaining and developing this infrastructure is now largely independent of experimentation. In turn, epistemic practices in experimental economics rely on the laboratory as a tool for understanding and reducing “background” factors and noise, activities that, according to Knorr Cetina, are also characteristic of particle physics. My case study of experimental economics suggests that the emergence and standardization of common infrastructures provokes renegotiations of the function of laboratories and enables new reconfigurations. Turning back to Knorr Cetina’s original example, I will explore which novel observations surface when applying this perspective to my current research on experimental economics at CERN.

Barbarians at the Gate(s) (Again): Access, Infrastructure, and the (Possible) Rise of Computational Art History Park Doing, Cornell Univ.

Engineers have machine learning software and algorithms that can analyze and do computations on visual art. According to them, they can ‘see’ things (patterns) in the paintings that art historians cannot, thus producing new kinds of meanings of the art object itself. For the most part, this is resisted by art historians and curators, but some engineers have intruded the art world and made some inroads into the field. On a mission to get their technology used (and thus transform the field of art history), these engineers strategize about (and are frustrated with) the gatekeeping and access practices regarding databases of digitized images/x-rays of art objects and institutional connections to (and monetary support by) museum laboratories and administration. Institutional and cultural differences between the engineering and art worlds lead to different views on the proprietary nature of images and the merits of allocating resources to collecting data in a general way, without a particular art history question in mind. The engineers want an open, full database of all aspects of the art objects - they feel interesting questions will arise out of a full computational exploration of the database as a whole. For them, the exploration comes before the ‘question’. Museums, curators, and art historians are very sceptical of the need to gather, and the propriety of releasing, such information without a particular purpose and explicit art history payoff. The rise of Computational Art History as a new epistemic field depends on the agreements over issues of infrastructure and access, which flow from different epistemological views of the two fields.

Traditional (Closed) Panel 4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Exeter

In STS, governance is conceptualized as a special kind of infrastructure crafted by science and poured into technology. What else are we to make of Max Weber’s foundational claim about the legitimate use of state violence without the bureaucratic regimes crafted in economics and jurisprudence? What is a population without a census and statistics, without techniques of defining, measuring, and counting people? Over the last decade a growing body of research in what we might call the Social Studies of Politics has unpacked the technoscientific assemblages of governing. But there is still so much more. Voting machines and census construction, official statistics and diplomatic training handbooks, data politics and state modeling -- a few of the banner cases for this STS approach to politics and governance -- are NOT just the cold, rational nuts and bolts of modern politics. They are loved and hated; cured for and rallied against; encountered and rendered familiar or hostile by citizens, diplomats, policy makers, bureaucrats and, of course, even us as scholars. These affective, aesthetic, and sensible dimension of our technoscientific assemblages of governance seem to become increasingly important to understand in today’s world of post-truth politics and its growing reliance on appeals to emotion and affect. For this year’s sessions on the Social Studies of Politics, we will explore the multiple ways in which we sense and make sense-able our contemporary machineries of governance: How do we care for files, how do we make borders visible, how to we love the technoscientific details of modern statehood?

Participants:

Machineries of Health Governance at Work: An Exploration of Invisible Work and Sensemaking in a Dutch Health Funding Agency Rik Wehrens, Erasmus University (Institute of Health Policy & Management); Lieve Oldenhoff, Erasmus University, Institute of Health Policy and Management; Roland Bal, Erasmus University Rotterdam

Healthcare is increasingly made governable by large-scale care improvement programs combining research, innovation and implementation. From the outside, such programs are perfect illustrations of technico-rational machineries exemplifying the engineerability of linear progress. This view of plan-based progress however neglects two important elements of governance. First, it neglects the collective and continuous sense-making activities conducted ‘back stage’ to decide what should be viewed as progress in the first place. Second, it ignores the invisible work necessary to construct a particular image of progress and governability to the outside world. This paper investigates a Dutch funding agency for health research responsible for governing large care improvement programs. We explore how collective sensemaking takes place through the enactment of invisible work. On the basis of document analysis of ‘backstage’ files of the funding agency and interviews with policy makers, we demonstrate different types of invisible work necessary for governing ‘successful’ improvement programs: 1) articulation work (coordination between different programs to ensure knowledge exchange and continuity), 2) staging work (the construction of visible cues in order to ‘stage’ actors/elements in a particular way), 3) narrative work (discursive positioning of past, present and future in order to situate the program spatially and temporally). These findings demonstrate that the funding agency has an active role: not only in steering the outcomes, but also in shaping the perceptions of programs. Although this role could be interpreted as devious framing, invisible work can also be viewed as an affective form of sense-making and ‘caring for’ governance programs.

Tactics of Colonization Within Some Brazilian Antarctic Cosmopolitics Luis Guilherme Resende de Assis, Instituto Federal de Educação Ciência e Tecnologia de Goiás

I discuss in this article some Brazilian cosmopolitical peculiarities in the ongoing colonization of the Antarctica. Such colonization is orchestrated within the Antarctic Treaty System, ATS, where national participation through scientific practices, aiming at peace and international, cooperation is mandatory. By

134. Social Studies of Politics II

Chairs:

Martina Merz, Alpen-Adria-Universität Klagenfurt, Austria
Sophie Ritson, Alpen-Adria Universität Klagenfurt / Wien / Graz
establishing investigative themes that enable groups of researchers to join the dialogues. The Scientific Committee on Antarctic Research, SCAR, works as a manager for the Antarctic enclave. Due to such themes, scientists of different nationalities involved in Antarctic Research, SCAR, works as a manager for the Antarctic enclave. Due to such themes, scientists of different nationalities are supposed to present equivalent data. However, data’s mobilization is a matter of how researches historically and technically corresponded to austral environment’s constraints. By doing so, I assume, their engagement can be translated as a particular ecology of practices where the advancement of National Polar Science is implied. The Brazilian Antarctic Program, managed by the Brazilian Navy is the “environment” of such an ecology of practice. Here I present my investigative strategies for the understanding of technical dimensions involved in the Brazilian science and technology, Cell Biology and Oceanography. I conceive as tactical the adjustments and gambiarras (kludges) performed by the scientists in the very exercise of collecting, building or inscribing data. It involves not just their relations within the environment, but together with the logistic supporters; in this case, military crew. As a result, I find approximations between tactics and cosmopolitics, as proposed by Isabelle Stengers. This paper is an elaboration prior to the defense of my doctoral thesis within the Social Anthropology Graduation Program, Federal University of Santa Catarina, Brazil. It results from ethnographic fieldwork research performed in 2010 and 2011 within the XXVIII and XXIX Brazilian Antarctic Operations. Cell Biology and climatologic activities took place in camping sites, respectively at Byers Peninsula, Livingston Island and Glacier Wanda, Admiralty Bay, King’s George Island; both at South Shetlands archipelago. Cell Biology activities were performed at Comandante Ferraz Scientific Station, at the Admiralty Bay, King’s George Island. Finally, oceanographic research was handled aboard NpO Almirante Maximiano during the navigation of Gerlache and Bransfield Straits, Antarctic Peninsula. My contribution to STS aims at possible relations between the Anthropology of Techniques and Latin American Decolonial perspectives. In a first glance, they can be seen as conflicting perspectives. However, mediated by Stengers’ cosmopolitics I find possibilities to connect them. I understand that this connection is tactical. Thus, I restore the current meanings of colonization in the ongoing annexation of the Antarctic continent to the World System.

Science Based Standards and Governance: Opening the “Black Box” of Regulation Making for Bottled Water Quality in India

Aviram Sharma, Nalanda University

The STS literature has addressed the question of regulation making in several new and emerging fields such as biotechnology, nanotechnology, synthetic biology and even in the domain of environmental science and public health. These studies are skewed towards advanced economies and deals primarily with advanced technologies and mostly from the emerging scientific domains. The regulation-making processes in developing countries is an under-studied topic in the existing STS literature. Moreover, quite less is known about regulation making for a mundane issue such as bottled water quality standards in India. The paper explores questions, such as, who are the regulatory actors endowed to make regulations for bottled water quality standards by the regulatory authority? What are the factors (science, technology, socio-political, economic, and environmental), that influence the regulation making of bottled water quality in India? What is the role of international regulatory bodies and their standards in shaping the national standards for packaged drinking water in India? How the regulation-making and enforcement practices feed to the overall debate on regulation making? The paper is based on extensive fieldwork conducted in India during 2009-2014. We have conducted around 20 qualitative interviews with experts from socio-legal studies, environmental science, sustainable technologies, government regulators, consultants, technology suppliers and around 33 interviews from bottled water firms located inross different states in India. We also used other sources of secondary and primary texts produced by regulatory institutions on bottled water, information provided on their website and reports, and standards and guidelines produced by Bureau of Indian Standards. The paper elaborates the nature of expertise used in the regulation making process and also explains the role of different kinds of knowledge and social political factor in making regulatory knowledge in India. And finally explores the link between harmonisation of national and international standards and the “implementation gap”, which is endemic in developing countries.

Calculating National Income with the Others

Kyunghwan Lee, University Southern California

How can we understand the economy or economic condition? How economic growth, the financial crisis has been predicted and calculated? One of the most significant measurements of the economy has been 'national income.' In other words, as national income increases, we may call it the economic growth. As an essential tool for estimating the size and condition of the economy, the national income has been the lens through which we can understand the economy. Originally how to calculate the national income was invented to respond to and deal with the crisis of Great Depression in the early 20th century, and it has been spreading out in a big way after World War II. Especially, with the concept of 'development', it has played the role of the compass to direct where to go (for making development). This paper will demonstrate national income as a ‘knowledge system and set of practices’ which include not only mathematical formulae, but also routines for gathering data, assessments of what phenomena can and should be measured and recorded, understandings of the meanings of these data, and practices for their distribution, interpretation, and application (Saetnan, Loneli and Hann, 2011).” In 1940’-50’s, South Korea as situated in the periphery also began to build systemic infrastructure to measure national income in part by themselves and in part with the foreign financial and technical aid. Various actors want to form national income system to measure with different purposes and intentions. For example, Korean government wanted to obtain accurate national income data for better taxation and economic (development) planning. For international organizations (such as United Nation, World Bank), national income data could be utilized for analyzing how foreign aid had been allocated and disbursed and for comparing each country’s achievement. In other words, national income has worked as ‘boundary object’. National income in South Korea came to be the artifact with diverse actors with various interests. This research will elucidate how different actors contributed to establishing the system of national income calculating which eventually has been the essential basis to understand the economy and to measure the size of the economy. Also, by examining the Korean case, this project will help to grasp how local economic experts understood and translated the concept of national income and how they negotiated for applying the imported concept to Korea situation. This will show how heterogeneous interests have been linked together into building the system of a national economy. This project will do historical analysis with archival data from Korea and the U.S. archives. Technical reports, policy documents, and cabinet meeting minutes will be collected. Most of the Korean archival data can be collected in the National Archives of Korea and the National Assembly Library of Korea. In U.S., the United Nations Archives in New York can offer me valuable data. Also, this project will also go over various Korean journals and textbooks of economics in 1950’s to understand how economic experts understood and translate the concept of national income.

Performing a Platform State: Ethnography of a State

Marie Alauzen, CSi, I3, PSL Research University Southern Califonia

This paper explores current attempts of our old modern State to adapt itself to the ecology of digital practices; a preoccupation
for many governments. In the United States, it is the Obama Administration that launched Government as a Platform initiative in 2012. Built upon Tim O’Reilly’s advice (2011), the Initiative promotes equal access to government for all, through the use of mobile devices. In 2014, in France, the State Modernization Office placed the idea of building a Platform State at the top of its agenda. Their first project is named FranceConnect. FranceConnect is an application programming interface, which is inspired by the technical denomination, interface and the protocol of the Facebook button “Create a new account or log in with Facebook”. Drawing on my ethnographic fieldwork on FranceConnect, I question what does Facebook imitation tell us about contemporary State machineries? In other words, in what way does Franceconnect perform a certain kind of State? The paper shows some of the French State concerns for digital innovations and Silicon Valley companies such as Facebook. As the State is the only entity that has the capacity to verify personal identity, FranceConnect is actually a sovereign affirmation that ‘truth identification’, including digital one, relies on the State. This power of identification – by assigning an administrative identity – embodies a certain policy about data and surveillance: unlike Facebook, the State asserts that it does not need to collect big data to know who a citizen is, and carry out with FranceConnect an economical use of personal data. The paper contributes to a STS-inspired Foucauldian approach of sovereignty.

Chair:
Nicholas James Rowland, The Pennsylvania State University

135. Entanglements in Critical Data Practices: Perspectives from Design Inquiry
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Fairfax A

What can we make of data that is neither raw nor pure? STS social scientists have long studied the ways in which data are heterogenous, diverse entities and activities. Ongoing research in this area, now dubbed critical data studies, is focused primarily on the political and ethical implications of understanding communities shaped by data. In parallel to these efforts, we pursue critical data practices, which make use of design inquiry to reframe the way those communities do their work. In the spirit of the theme of (In)sensibilities, this session will call particular attention to design, art, craft, and other making practices that strive to render data as coherent, despite the seamfulness of both data and the hands-on practices through which they emerge. The session explores the various design strategies and tactics used by the community in both the collection and presentation of the data as practices of care and how these practices produce entangled publics that are, in part, constituted by their data practices.

Socio-Technical 'Patchwork' in the 'Smart City': Predictive Platforms, Civic Imagination and Anticipatory Urbanism
Laura Forlano, Illinois Institute of Technology

While top-down corporate “smart city” initiatives are often framed in opposition to bottom up “civic technology” initiatives, in reality, these boundaries between these two models are blurred, co-evolving and tangled in a number of interesting ways that are best understood by taking a longitudinal approach to urban technology and related data practices. In some ways, both of these technocentric modes, could be understood as technologically deterministic and disconnected from social needs. However, on the other hand, they might be also understood as generative and experimental ways of “searching” for an appropriate fit between technology and humanity. While top-down models are often framed as technologies in search of a solution or “if we build it they will come,” bottom up models are more likely to engage human-centered design, participatory design, speculative design, or civic hackathons. As progressive scholars and technologists promote a “city as platform” narrative that draws on technological frameworks and metaphors, it is also necessary to question these frames and advance alternative forms of relations between cities and technologies. The tension between prediction using large data sets and speculation around possible alternative futures is also explored. This paper discusses examples of both top-down and bottom-up urban technology initiatives from New York and Chicago including wireless networks, smart grids, sensor networks and autonomous vehicles. Yet, in the case of Chicago, government and corporate initiatives around innovation and the “smart city” have taken an interest in human-centered and participatory processes in order to build relationships and identify “user needs”.

Data Biographies for Critical Data Pedagogy
Catherine D'Ignazio, Emerson College; Yanni Alexander Loukissas, Georgia Institute of Technology

The rise of the open data movement, the widespread publication of government data on portals, and the proliferation of APIs has led to a new class of creative data consumers studied but rarely engaged by STS; journalists, entrepreneurs, media analysts, organizers, activists and artists who encounter data sets “in the wild.” These groups often have little to no knowledge about the varied collection processes, institutional logics, storage mechanisms, and unintended impacts of open data. The most well-supported open data sets provide data dictionaries, user guides, playbooks and other metadata to fill in the context that a spreadsheet leaves out. But for most publishers, just posting an .xls file online is a struggle. Accessible does not mean actionable. We frame this as a problem of critical data literacy: creative consumers of data must learn to read between the rows and columns. In order to both call attention to and address this challenge, we are developing new ways of seeing data’s entanglements. Our “data biographies” are principally pedagogical tools, useful for exploring how data sets came to be in the world. Instead of working forward to learn what data might reveal, creating a data biography means going backward to uncover why and how data were collected, and for whom. Our paper will explain how data biographies work, offer examples from our own classrooms, and comment on the pragmatic implications of putting data biographies into action.

Meaningful Inefficiencies: Encounter, Play and Dialogue in the...
Smart City Eric Gordon, Emerson College

Smart city discourse has grown to include a suite of technologies integrated into the environment, from urban sensors to measure everything from air quality to body temperature, to mobile devices to capture movement, and facilitate reporting. Just as cities embrace the hyper efficiency promised by the smart city, there are emerging practices that resist this logic. We explore the tensions between the promise of the smart city and the realities of the bureaucratic management of human relations and communities. We look at several examples that seek to disrupt dominant approaches to governance, specifically those that push the smart city from its focus on efficiency and innovation, to include the messiness inherent in human relations. These efforts are by no means a rejection of the smart city, but they seek to expand the definition to include a range of inefficiencies too often excluded from the discourse, such as encounter, play and relation. We introduce the concept of meaningful inefficiencies to capture the range of activities and approaches taking place in civic organizations that deliberately seek to challenge the dominance of technological efficiency in contemporary governance. We explain these practices through the metaphor of games, where players are provided with goals, and confronted with unnecessary obstacles that make their striving for that goal meaningful. We call these meaningful inefficiencies and argue that, distinct from mere inefficiencies, they are necessary for making a city smart.

Decomposing Data Hanna Rose Shell, Massachusetts Institute of Technology

This paper examines the idea of decomposition as it pertains to analog and digital forms of data. It looks at three sources of audio-visual media data – celluloid, VHS, and mp4, and the various impacts that deterioration and disintegration, have on how we theorize their ontological and epistemic signification as “data.” Drawing on recent work in new materialism, as well as close engagement with both the “sensible” and “insensible” aspects of the very palpable, smellable, touchable, even testable world of rag waste, the paper argues for a “decompository” approach to data biography and history.

Chair: Carl DiSalvo, Georgia Institute of Technology

136. Clashing Environments and Environmentalisms in Latin America II

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Fairfax B

Since the beginning of STS a few decades ago, the environment has become an important site for understanding the relation between different forms of knowledge (Wynne, 1996), the delimitation of science-policy interfaces (Jasanoff, 1990) and the management of technological risks (Wiertz, 2016). But as with most of STS, these discussions tend to have a distinctively Northern perspective, taking as a starting point the emergence of post-industrial risk societies in Europe and North America. At the same time, the body of literature that discusses environmental issues in Latin America and other developing countries tends to focus on power struggles while ignoring the central role of science and technology in framing environmental issues. In this context, we aim to bring together studies that look at different aspects of the relation between the environment, science, technology and society in Latin America. We believe that in this way STS could offer new perspectives to contemporary environmental controversies in Latin America. We expect contributions from a wide range of perspectives within STS and beyond, covering topics such as payments for environmental services (PES), REDD+, urban pollution, (post)colonial conservation, local knowledges about the environment, socioenvironmental conflicts, production of environmental knowledge across the north/south divide.

Participants:
- Postcolonial Plants and Power: Making, Transmitting, and Receiving the Brazilian Bioenergy Model Nicole Labruto, Massachusetts Institute of Technology
- Monocrop agriculture has, for five hundred, shaped social, political, and ecological relations across Brazil. In the early colonial period, a regime of enslaved African labor on plantations shifted populations and irrevocably altered environmental and social landscapes. At the turn of the 20th century, plantation-based experimentation with combustible fuels led to the rise of a sugarcane-based energy system that now helps Brazil stand apart as a leader in renewable fuels. Now, in an era marked by climate change, pollution, and rampant resource extraction for fossil fuel procurement, Brazilian scientists are creating new energy commodities from the biological processes of crop plants in hopes of mitigating the ill effects seen in what has been called “the Anthropocene.” Doing so in Brazil, however, requires transnational and spatial legacies as well as present-day social and industrial infrastructure to create a new kind of plantation, one centered on technoscientifically mediated crop development and production. I call this the plantation network: a postcolonial agricultural formation that includes laboratories as obligatory passage points in the growing of plants to meet human needs and desires. This paper, based on ethnographic research in Brazil and Mozambique, focuses on a node in this network that sees a think tank of Brazilian natural and social scientists evaluating and codifying a “Brazilian biofuel model” for implementation in Mozambique—a Lusophone nation that ranks globally among the lowest in GDP per capita, human development, economic inequality, and life expectancy. Members of the university-based think tank understand their “South-South” technology transfer as key to social and economic development, even as cane harvesting remains brutally difficult labor. Biologists, biochemists, agronomists, and economists produce overlapping kinds of knowledge about Brazilian and Mozambican environments—in the forms of soil data, climate maps, agricultural productivity projections, and social inclusion models—with the aim of arriving at commensurable crop plants, growing fields, and laboring bodies upon which to implement their model. I argue that in planning for a Mozambican biofuel future, experts not only produce a Mozambican agricultural reality that is visible in and through a Brazilian socioagroecology; they also conjure a “Brazilian biofuel model” that harkens Portuguese colonial endeavors. In both the historical and contemporary cases, the transmission of defined but unwieldy and uneven agricultural plants, plans, and infrastructure shapes social and environmental configurations. The paper engages STS literature on postcolonial science studies, Brazilian science studies, agrarian science, South-South technology transfer, ecological alteration, energy provision, and sociotechnological development strategies.

Imaging the Bioeconomy across the North-South Divide Tess Doezena, Consortium for Science, Policy and Outcomes; Raoni Rajão, Federal University of Minas Gerais (UFMG)

Biofuels have been increasingly framed in the past quarter of a century as part of an aspirational bioeconomy—a solution for a host of globally imagined risks actively propagated by a proliferation of developed countries and international institutions—while also playing a historically important role in national efforts to achieve energy independence and development across the Global South. To better understand how notions of the bioeconomy are negotiated and mobilized by actors implicated as central to the creation of the bioeconomy, we interviewed policy-makers and researchers working on knowledge production and innovation for biofuels in Brazil over a period of six months in 2015. Contextualizing this study within existing literature on sociotechnical imaginaries of globalism, we examine negotiation, transformation, effect and subversion of a sociotechnical imaginary of globalism as it transcends the bounds of the set of international organizations within which it originates. Bioeconomy discourse as propagated by nations in the Global North is based on a particular imaginary of globalism, with corresponding political and economic implications for prescribed action. At the same time, Brazilian biofuels knowledge producers articulate a vision of a future bioeconomy that diverges significantly from articulations of what bioeconomic progress would look like.
137. Breaking Codes: Technologies from a Gender Perspective
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Gardner A

What does it mean to produce knowledge linked to digital technologies from a gender and/or feminist perspective? What is implied in thinking about technological developments from a feminist perspective? How does the women's and feminists' movement appropriate and make use of these technologies? While these questions have been confronted experientially around the world, they have not necessarily been incorporated into academic research and analysis. Attention is increasingly focused on the ways in which they perform the world in specific ways. Drawing upon this ongoing debate, this study examines the different land-use models that have shaped the creation of protected areas in the Amazon from the 1970s to the present. In particular, it shows that foresters, soil experts, veterinarians and more recently, biologists and simulation modellers have supported and fostered specific visions of both the present and the future of the Amazon. This examination indicates the central role of science and technology in both the colonisation (and destruction) of the rainforest and the attempts to protect it. Furthermore, it reveals how the visions of the future embedded in these land-use models have been shaping the region in the last four decades.

Chair: Susanna Hecht, UCLA
Discussant: Susanna Hecht, UCLA

Participatory Practices in Sociotechnical Design – Productive Tensions between Gender Studies and Computing Claude Draude, University of Kassel, Germany

The co-construction of gender intersectionality and technology, e.g. in terms of participation in tech culture, artifact use and production, is a well analyzed topic in feminist STS. Findings from relevant studies or proposed changes in methodology or curricula, however, are scarcely incorporated in computer science. Or rather, some aspects of feminist critique find their way into technological fields, while others are left out. Harding’s (1986) considerations on the social structure of science, gender symbolism and preconceived ideas, are determinative choices must be made along the design cycle. The basic principles of computing lead to a favoring of certain types of knowledge about the world: Rule-based, formalized or quantitative forms are more readily connectable than qualitative or narrative ones. In computing, norms, standardizations and algorithms act as processes of exclusion when it comes to implementing social diversity. Thus, research connecting gender studies and computing calls for constant translational work. The challenge of this is to be attentive to epistemological differences and modes of in- and exclusion. Giving examples from my work in sociotechnical system design, I present a process-model for the integration of intersectional gender aspects into computing.

"LAN houses are for boys and Telecenters are for girls:" CTCs as Gendered Spaces David Nemer, University Of Kentucky

In every culture men and women differ in their information needs and views about information and communication technologies (ICTs). These views, in turn, have an impact on how men and women access and use new technology resources. Although the differences between the sexes are apparent in most contexts, technology developments continue to be gender indifferent. While an argument can be made that ICTs are gender-neutral, the fact remains that institutional frameworks and formal and informal social structures have a profound impact on the way in which new technologies are deployed and used. Based on a 10-month ethnography in Community Technology Centers (CTCs) in the favelas, urban slums, of Vitoria, Brazil, this study focuses on the experiences of marginalized favela women in using of ICTs. This study develops on the notion of technological space beyond the physical into the domain of space as socially constructed and negotiated, exposing how space can be defined by socially explicit and implicit boundaries. It focuses on the gender differences in using ICTs while highlighting the experiences of the local favela women.

From Contradictions to "Redoing" Gender by Men and Women in IT Enterprises Ana M. González Ramos; Laura Lamolla Kristensen, Open University of Catalonia; Elisabet Almeda, University of Barcelona; Núria Verges, University of Barcelona

Institutions are gendered which "means that gender is present in the processes, practices, images and ideologies, and distributions of power in the various forms of social life" (Acker 1992: 567), involving workplaces, school, and family (Kimmel 2000). Gendered institutions yield gendered personas (Shelley et al 2011) who incorporate practices according to previous and novelty experiences to their social relationships. Contradictions and complexities, which characterize women of different cultures and social classes (Mohanty 1984), appear as a result of the patriarchal background established everywhere. Understanding the contradictions and complexity faced by women in gendered institutions, we will find out what structures are meaningful dimensions of discrimination (also related to social change) that are in the basis of the gender inequality. The identification of this contradictions and processes will contribute to design more effective policies regarding incorporation, retention and promotion of women in male dominated environment, such as the IT sector. Our work examine the women’s perspective on the IT sector, showing data from qualitative and quantitative data related to gendered processes where they negotiate daily gender issues with themselves, gendered persona in organizations, and the institution. We analyze particularly, what they think about their role as professional and women (also as employers, self-employed and bosses) in IT workplaces. We explore
contradictions regarding their work, colleague’s relationships and themselves. The results point out both the under-recognition of gender inequalities and satisfaction with their relationships in male dominated environment. Women who report gender discrimination in the labor market, do not usually show agency to amend this situation because they think it is an isolated case (Kelan 2009). This thought hinders collective action and self-conscious practices, leaving unchanged the position of women in the institutions. The results also shows that intersectionality of age and gender is both related to high discrimination of women in the labor market and more conscious about inequalities in workplaces. This project was funded by Recercaixa (2014ACU/P00013) and the Spanish Ministry of Economy, Industria and Competitiveness (FEM2013-48225-C3-1-R, and FEM2015-71218-REDT).

The ‘Femicide State’ and Drone Mediation in the Fight against Gender Violence in Mexico Marcela Suárez, Universidad Autónoma Metropolitana

This article analyzes the ways in which social collectives in Mexico have been developing socio-digital networks (made of socio-material agencies and technologies such as the Internet and unmanned aerial vehicles (UVs) commonly known as drones) to open new spaces of political participation and intervention in public spaces to contest violence against women in Mexico. The article seeks to arrive at a better understanding of the role that digital technologies play in promoting new forms of digital engagements, political action and counter-culture strategies. It considers both the Internet and drones as pivotal instruments in a larger network of technologies through which social collectives seek to mobilize knowledge, create awareness, and contest power in order to combat violence against women in Mexico. By drawing on feminist technoscience literature, the article seeks to provide new insights into the literature on digital politics and to go beyond the “digital divide” by showing the feminist networked strategies that are at play in political participation and by developing new understandings of current civilian disputes over aerial and digital spaces as public spaces.

Chairs:
Patricia Pena, University of Chile, Institute of Image and Communication
Maria Goñi, Universidad de la República
Marcela Suarez
Kemly Camacho, Cooperativa Sulabatsu

138. Placebos, Nocebos, and the Contradictions of (In)Sensible Biomedicine

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Gardner B

We propose an open panel that brings together STS thinkers who share an interest in the work of placebos/nocebos in biomedicine and other realms of scientific research. Placebos (and their sinister twin nocebos) proffer compelling sites at which to dig into the conference theme, (In)Sensibilities. On the one hand, placebos are solicited by pharmaceutical and medical research as a way to purify treatments from noisy contaminants; new drugs enter the market because they emerge, triumphant, out of placebo-controlled trials. This triumph depends upon the demonstration of the insensibility of efficacy: a drug works because of its contrast with overly sensitive placebos, not because of its own entwined sensibilities. On the other hand, placebos index the very sensoria of biomedicine (and other forms of scientific practice) that placebo controls seek to block. Placebos include white lab coats, prescriptions and brand-name pills, and placebo effects mark these highly potent and sense-able ingredients of medical practice. Indeed, drugs work—and work better—because of placebos. Nocebos, in turn, include signed consent forms outlining potential treatment side effects; nocebo effects demonstrate that sensibilities can harm, as well as heal. This panel seeks to explore the contradictions between the (in)sensible ambitions of biomedical treatment and the sensible workings of placebos and nocebos. Papers might examine the insights of science studies scholars like Isabelle Stengers and Vinciane Despret into the conceptual import of placebos. They might draw out the significance of work by scholars like Joseph Dumit into the technological use of placebos in biomedicine.

Participants:

Counting the Placebo Dead: Early AIDS Activism With and Against Placebo-Based Drug Trials Alexis Shotwell, Carleton University

In the years before multiple drug therapy to treat HIV infection, staying alive often depended on access to drugs to reduce for prevent the opportunistic infections that killed people living with AIDS. Drug access was a significant political goal of AIDS activist organizations of the time. The late 80s and early 90s were also a time of lively medical research cultures, in which people with the virus participated in a range of ways, including participating in double-anonymized placebo drug trials, sometimes as the only way they accessed emerging drugs. In this context, activists engaging with medical research both took up and contested research protocols related to drug testing and access. Trials using placebo protocols were an especially tangled site of intervention. In this paper, I reflect on the nuanced medical interventions AIDS activists in the Canadian context made in placebo trials. Drawing on interviews with people involved in specific campaigns around placebos for two key AIDS drugs ( aerosolized pentamidine and Ribavarin), I examine a distinction they came to make between social relations of research and social relations of treatment. As one activist said about their opposition to a trial in Canada on a drug that had already been tested in France: “The very design of the trial meant that the only way for the trial to be successful was to count the number of people who died on placebo.” I investigate how activists negotiated making better drugs while also keeping people alive.

Neuro-Imagining Placebo Effects Saez Berkhourt, University of Toronto

Despite their widespread presence in biomedicine and the more recent turn across the sciences that figures them as objects of knowledge in their own right, placebos have received very little attention from the STS community. And yet, they are of especial interest precisely because they dramatize the phenomena of “biological embedding” (Hertzman 1999) and the biosocial—illuminating how experience, sociocultural, political, and economic context are (literally) embodied and made sensible. In this paper, we explore the biomedical narrative within placebo studies, which supposes that placebo effects are “real” rather than imaginary because of measurable physiological outputs; from here we trace a move to the notion it just is the physiological outputs themselves—neurochemical signals, brightly lit regions on transverse sections of computer-generated brain images—that define what placebo effects “really” are. It is at this point in the narrative that there is also an erasure: by being made sensible through neuroimaging technologies placebo effects are then construed as insensible—they are the foil to active treatments and efficacious pharmaceuticals. Drawing on feminist science studies scholarship to raise deep challenges to the narrative of real/imaginary and the doubling back on (in)sensibility, we point to problematic presumptions underpinning the conflation of visual data with objectivity. Discussing major fMRI and PET placebo studies, we explore how imaging data is routinely decontextualized from the activity that goes into producing the visual display: images are amalgamated into a single representative picture, despite high interindividual variability; computer-generated images and schematics are both the “real” thing, insofar as one can literally see the lit-up neuroanatomy, and yet do not correspond to any one brain that was under study; filters are applied to the images that are constructed from amalgamated data, removing detail as well as noise; images are weighted toward central pixels while reducing those that are at the margins and edges. We argue that the practices of neuroimaging and the reliance on visual rhetoric obscures the necessity of numerous appendices and statistical manipulations needed to produce a compelling story. Despite the fact that most models acknowledge that verbal, contextual, and social cues give
rise to expectancies that drive placebo effects (Colagiuri et al. 2015), these domains are lost when research methods rely on unsituated data, decontextualizing bodies and tissues in order to render placebo effects as neurochemical mechanisms.

Placebo Effect Narratives and Chronic Benzodiazepines Use in Uruguay

Nancy Beatriz Calisto, Academic; University of the Republic (Uruguay); Andrea Clara Bielli, Universidad de la República; Santiago Navarro, Universidad de la República; Uruguay; Maria Pilar Bacci, Universidad de la República; Gabriela Lilián Bruno, Universidad de la República

This paper analyzes narratives of public health professionals of Uruguay on the long term use of benzodiazepines in patients with insomnia and the effect, of its extended use further than indicated. In Uruguay, benzodiazepines are frequently prescribed at the first level of health attention by general practitioners, psychiatrists, family doctors, cardiologist and other specialist doctors. The data presented are part of the results of a qualitative research carried out on the role of the so-called "benzodiazepine controversy" in the clinical practice of medicine, psychiatry and psychology in the Uruguay public health sector. 35 in-depth interviews were conducted to general practitioners, family doctors, psychiatrists and psychologists; 2 discussion groups; and 10 interviews to sanitary authorities. Professionals interviewed commented on patient resistance to their intention of withdrawing a medication, use of which does not correspond for chronic problems. Some narratives on the placebo effect for insomnia after years of use of a medication that would be indicated for not more than six weeks are analyzed. Narratives about placebo effects related to the chronic use of benzodiazepines emerge. These narratives depict the patients will to continue on benzodiazepines as irrational and senseless but at the same time explain how benzodiazepines work for chronic insomniacs. We discuss that these arguments contrast with the placebo notion of clinical trials that is used to distinguish the difference of taking a drug or not taking it. Paradoxically, in health professionals accounts placebo effect turns out to be a reason to take medicines, not to withdraw from them. About these paradoxes we want to contribute to the discussion about placebo and nocebo effects in biomedicine.

The Stabilization of Psychiatric Diagnosis: Psychotropic Drugs as Boundary Objects

Carolina Genevryo Saldombide, Universidad de la República (Uruguay)

In the last decades many studies have shown profound changes in medical practices. This points out that we are attending to an epistemological shift turning medicine into biomedicine. In this context, our research analyzes the concomitant practices of diagnostic psychiatric judgement (DPJ) elaboration, focusing on the materiality and the significances of diagnosis-making. We address our study object from Actor-Network Theory (ANT). Drawing on the boundary object notion established by Star & Griesemer (1989), we explain how psychotropic drugs act in DPJ production. Through a focused ethnography and a series of qualitative in-depth interviews carried out at a university hospital in Barcelona, it will be suggested that psychiatric diagnosis is not only the result of clinical assessment. We put forward that psychotropic drugs as boundary objects support the process of diagnosis-making, allowing the continuous negotiation of significances. That means, the interpretive flexibility of psychotropic drugs supports or rather administers to the ambiguity and uncertainty of psychiatric practices in the process of diagnosis-making in its own materiality. In biopsychiatry, psychotropic drugs as boundary objects act as central mediators in knowledge management, establishing the semiotic-material assemblage of diagnosis. Thus, our work highlights the materiality of the clinical expertise artifact, enacted through psychopharmacological translation, in order to produce a DPJ.

Local and Global Perspectives

Traditional (Closed) Panel

4:00 to 5:30 pm

Sheraton Boston: Floor 3 - Hampton A

A new generation of gene editing technologies has made it easier than ever to intervene into the genetic makeup of living organisms, and to reshape the forms and functions of life from microorganisms, to plants, animals and humans. Recent reports on genome editing, by the US National Academies of the Sciences, the UK Nuffield Council and the UNESCO Bioethics Council have unanimously emphasized the need for extensive public engagement, to collectively consider the possible uses, risks and limits of gene editing technologies. However, a systematic reflection on how to achieve and use public engagement in the different application fields of genome editing has not yet happened. Moreover, in light of the transnational nature of genome editing, more inclusive forms of decision-making are difficult to realize. Countries have different traditions of involving publics, and purposes, audiences and extent of engagement vary. Public engagement across borders is complicated, furthermore, by differences in cultural and religious values, global asymmetries and different economic, social and political and health care priorities. This panel aims to generate insights into: - The ethical, legal and social implications of different fields of gene editing research and applications - The development of new models, methodologies and practices of public engagement for genome editing, in different global contexts. - The challenges of public engagement for gene-editing in transnational contexts, and across different political systems and socio-economic and healthcare differences - The role and possibilities of education - as a supplementary tool to public engagement, in national and international arenas.

Participants:

The Development of Standards of Practice in Genetic Engineering: Collaboration/Communication Santiago Jose Molina, University of California Berkeley

Public deliberation about the ethical and social implications of genetic engineering hinges on understanding how scientists develop best practices. This paper draws from two years of comparative ethnographic research at two genetic engineering labs at an emergent multi-sited organization, the Innovative Genomics Institute (IGI) of UC Berkeley and UCSF. This paper examines two components of scientific work that scientists misrecognize as orthogonal and illustrates their interconnectivity: scientific collaboration and public communication. Researchers develop standards of practice when they collaborate with one another. Local and global collaboration is fostered through emergent organizational forms such as associations and institutes. When researchers share protocols, materials, and data they also refine and cross-validate experimental and interpretive practices. In this way, the researchers at IGI disseminate innovative CRISPR/Cas techniques through networks of expertise and bolster their status in the field. The emergent organization (IGI) that enables this collaboration, however, requires public communication in order to garner legitimacy. Researchers promote the visibility and legitimacy of the organization through press releases, interviews with journalists, and social media. Unable to manage the expectations of multiple publics, IGI scientists struggled to develop organizational avenues to resolve public queries and demands from high school students, patients and their advocates. I argue that scientific collaboration and public communication are co-determined outcomes of scientific innovation. While both require similar strategies (cultivating trust, managing expectations, articulating goals, etc.) researchers reproduce and maintain the boundary between science and society. Because of this misrecognition, standards of practice continue to develop independent of public input.

The Governance of Gene Editing in China: The Silent Science

Santiago Jose Molina, University of California Berkeley

Historically, the Chinese government has been quite cautious about developing its own gene editing capabilities for fear of Western influence, and the Chinese have a strong tradition of state-led science. As a result, Chinese gene editing research has been concentrated around government-funded universities. However, since 2015, the Chinese government has begun to loosen its grip on gene editing research, and has been encouraging its researchers to collaborate with Western scientists. This paper will examine the challenges and opportunities that this new environment presents for gene editing research in China.

The Governance of Gene Editing in China: The Silent Science

Santiago Jose Molina, University of California Berkeley

In the governance of emerging technology such as gene editing, the science community played a very important role in bridging different stakeholders, because they’re always in the perfect
The Global Expansion of Heritable Germ Line Genome Editing: Responsible Innovation frameworks and public engagement

This has resulted in risky and sometimes irresponsible forms of clinical interventions that involve heritable germline gene editing research, and in particular from the gradual shift toward clinical applications in this research field. This project involves qualitative interviews among UK stakeholders and data from a multi-stakeholder workshop in London. Based on insights from this study, this paper reflects on the challenges for public engagement in the context of both, emerging preclinical and clinical forms of heritable genome editing. The following questions are considered: (1) the managing of shared global risks, in particular the surfacing of potential “rogue” or “irresponsible” forms of clinical applications, and (2) the ethical governance of multi-country preclinical research and clinical trials.

Chair: Achim Rosemann, University of Warwick

140. Now You See It, Now You Don't: Mapping Contours and 'Seeing' Methodologies of Transnational Research 'Labs'

Research institutes in corporate settings or think tanks often understand how their work influences policy and development directly. In academic institutions, the path is less direct, often clouded and cluttered with longstanding silos and a (self) perception as an ivory tower, removed from society. Methodologies of engaged research have been successfully explored in small-scale outreach efforts (e.g. Participatory Action Research), but in large-scale, global research networks, revisiting impact requires a critical questioning of what research is when it isn’t recognizable as research. What does it mean to research the forms and methodologies of research when it doesn’t look like research? What does research look like at this scale? Should we conceptualize it as epistemological process? As performance? In this panel, we present four papers that in turn explore the case of three international research centers coming together to find common boundaries. We explain, from our different disciplines and perspectives, how this merging process highlights the invisible dimensions of our research endeavors. We use this panel to rethink the traditional STS focus on laboratories to watch science in action, and also veer away from the guidance of Actor Network Theory techniques and concepts. In this way, we welcome the dilemma of embracing the (in)sensibility of research that looks more like development, functions at massive scales, and involves what might be considered activist intervention, pedagogy, and action research design, alongside more traditional approaches such as interaction design, cultural studies, and ethnography.

Participants:
- Our Habitus, our Displacements: Contemporary Art and Research in Migratory Times and Spaces Dalida Maria Benfield, Center for Arts, Design and Social Research
- “Migratory Times” constructs a transnational architecture for artists and researchers to share information and develop inquiry-based forms of art and social engagement. As we work to build our network and deliberately engage multiple publics, our own migratory dimensions are foregrounded. Each of us is located in what Pierre Bourdieu terms a “habitus”: a space constructed by multiple social flows. Different forms of mobility and immobility are highlighted in each location: The migratory movement of people; the migratory flows of media and information; displacement due to land development, resource exploitation and other forms of capitalist territorial expansion; climate change; and militarized occupation, war, and conflict. This paper describes how these conditions—and our reflections on them—have produced unique methodologies. As a project that is facilitating inquiry about migration by more than 30 artists and researchers in different locations, the project embraces multiplicity and mobility. Yet, if a distributed research project is consciously mirroring migratory subjectivities that are in flux and multiple, how does it create a shared platform? Ranging from questions of the design of our online spaces to the different forms of our individual knowledge production, this challenge manifests in numerous instances of unexpected nuance, expressed through flexible design and communication. By reflexively acknowledging our own migratory times as a massive global research team, the seeming instabilities translate into communication protocols, culturally sensitive research design.
Serendipity, Bricolage, and other Useful Tools for Finding Meaning in Large Scale Projects

Annette Markham, Aarhus University Center for STS

How does development itself function as research? How does research function as development? This paper describes the case of two seasoned STS ethnographers trying to study the several research teams; an international collaborative connected with more than 50 city partners with the mission to ‘study’ smart city development practices. The methodological challenge is on two levels: First, the research teams appear to be networking rather than researching, meeting with smart city developers, city planners, and governmental agencies to build infrastructures. Second, they cannot describe what their research is beyond infrastructure building. Yet, their work matters. For several months, we were stymied by our inability to understand these activities as research. When we shifted our lens to accommodate serendipity and bricolage, we identified that the focus of analysis could only be recognized in retrospect, after years of engagement. We might describe the situation as ‘implicit grounded theory’ in action, whereby the process of conceptualizing “smart cities” is embedded in trial and error, but is difficult to observe as research. We instead choose to see research as “mattering” (c.e. Karen Barad, 2003): that acquiring meaning through dynamic reconfigurations of locally determinate causal structures. Thus, objects of investigation do not emerge in space and time, but acquire meaning and form in the making of spacetime itself. In this way, we can begin to see research as research only after the fact.

Ethnographically Researching the ‘Smart City.’ In process, to be conceptualized Debora Lanzeni, RMIT/UOC

In this paper, I make the case for looking at how knowledge emerges into what is described later as a “design process” (c.e., Bowker and Star, 1999; Leach and Wilson, 2014). I discuss the importance of finding creative ‘ethnographic devices’ (c.e. Aritzia, Sanchez-Criado on fieldwork devices), that function to break the typical epistemological infrastructures of sensemaking. In this way we can identify the concepts that, because they function as buzzwords, overshadow and obscure what we can know about smart cities, such as open, solutions, participation, efficiency, and collaboration. This paper emerges from a long term ethnography of smart city development situations, where we found that in their work, developers rarely rely on concepts such as “open access”, “accuracy” or “data.” These are ready-made concepts that describe what happens after the fact. Taking this finding beyond this specific case can help us recognize that when we focus centrally on these concepts in ethnographic STS studies of smart city development, we have already missed the point because the actual knowledge production is obscured. It is not here, in or around these concepts. So, how do we research the things that are in the process of being conceptualized or physically articulated (Halse and Boffii, 2016)? Or, how to research things in the process of becoming, like Smart City platforms and IoT deployments? I explain the design and possibilities of an ethnographic device which is made to research the research of Smart City making along with the primary researchers in Smart City research contexts.

Urban Design Enfranchisement: a critical path for cities and for metropolitan science Martin Brynskov, Aarhus University; Matthew Claudel, Massachusetts Institute of Technology

Contemporary practices of urban planning, development and governance sits in antagonistic contrast to experimentalism and research in a digital era. Urban processes are long-term, top-down, procedurally traditional, and, crucially, practitioners have “no right to be wrong.” In contrast, developing practices around digital infrastructuring, and their stated goal of supporting life as research only after the fact.

Urban Design Enfranchisement: a critical path for cities and for metropolitan science

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OrganCity is an initiative for galvanizing, sustaining and transposing urban innovation. This panel turns to 4S as an opportunity for advancing the topics, norms, and tools of research in urban innovation.

Chair: Annette Markham, Aarhus University Center for STS
Discussant: Anna Croon Fors, Department of Informatics, Umeå University, Sweden

141. Exploring Prediction: Fortunetelling, Prognostication, and Futurism

Traditional (Closed) Panel 4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Jefferson

In popular understanding, predicting the future is usually associated with superstition. However, predicting is not simply nonsense; it builds complex relations among science, bodies, and culture thus constructing and revealing systems of nature and society. For example, in some eastern Asian societies, fortunetelling is a knowledge system that simultaneously draws on traditional understandings of nature and the body, medical science, and social values. The fortuneteller is like a mediator establishing a network of understanding among nature, society, the body, and the self. In other words, predicting can be a perspective for revealing the human-nature relationship. In this panel, we are looking for papers treating prediction as an embodied, technical, and culturally embedded practice for revealing the human-nature relationship. Papers could address a range of questions, including: What factors contribute to and are shaped by predicting practices? How do predictors’ and recipients’ flesh matter in predicting? What are cultural, material, and scientific bases of predicting and how do they work? How do the practices and skills of predicting configure and reconfigure predictors, customers, and predicting itself? Who are the actors and the actants in the network of predicting? What is the politics of predicting? What kind of the human-nature relationship does predicting establish? Who counts as a legitimate predictor and who does not? Through those questions, we are seeking STS perspectives that revisit the human-nature relationship in fortunetelling, prognostication, and futurism.

Participants:

How is a Modern Fortuneteller to Predict the Future? An Explanation by Taking Actor-Network Theory

Yuh Chern Lin, National Tsing-Hua University

How a modern fortuneteller to predict the future? Is Chinese Physiognomy a bluff? Or the fortunetellers really know something? I attempt to take Actor-Network Theory to analyze fortuneteller’s skills, practices, and strategies. My previous work indicates that anthropologists and fortunetellers have a strong binary assumption about fortune-telling techniques. The anthropologists think to predict the future is a cultural phenomenon when the fortunetellers believe fortune-telling is a reflection of nature. But I have a different idea. After interviewing the Physiognomy Master HSIAOHSIAYING (蕭湘居士), I think fortune-telling is a hybrid of combining social and natural networks. Because the fortunetellers have the abilities of translation and using new technology/tools, they enhance the accuracy of their predictions and make sure their predictions work on different cultures.
Cones, Spider Webs, and Teddy Bears: Reflections on Questioning Compulsory Heterosexuality of Fortunetelling

“Midnight-Midday Ebb Flow” : Predicting State of Qi and Blood in the Various Meridians Wan-Chun Cheng, China Medical University; Su-Iso Yang, China Medical University

“Midnight-midday ebb flow” is an ancient acupuncture theory which indicates the state of qi and blood in the various meridians, and the receptivity of different points varies in time. Furthermore, the most effective needling time can be calculated by heavenly stems and earthly branches. There are 12 earthly branches associated with 12 main meridians, 24 hours, and 12 months, which are used along with the stems to count the days and years. The branches are also intimately connected with the six-division sequence but these divisions are used to measure energy by year, not by month, day or hour. They create spatial relationships between the meridians, providing a template for harmonious and balanced point prescriptions selection. By far, many doctors have used “midnight-midday ebb flow” to cure patients. They claim that it could have good effects. In order to understand the arrangement of the time and space of the “midnight-midday ebb flow” with respect to the five shu points. We choose one representative verse to analyze the heavenly stems, earthly branches, timing and acupoints, as well as further explaining the contexts.

Questioning Compulsory Heterosexuality of Fortunetelling Knowledge in Taiwan Kuan-Hung Lo, Virginia Tech; Yuh Chern Lin, National Tsing-Hua University

Compulsory heterosexuality does exist in fortunetelling knowledge. For example, fortunetellers assume that a man should marry one or more women and the best future of a woman is to marry a man whose future matches her. However, those predictions don’t work on LGBTQ because LGBTQ’s relationships are out of heteronormativity. When providing service to LGBTQ, the fortunetellers often make the inaccurate predictions which are based on compulsory heterosexuality fortunetelling knowledge. Or, they may change their ways to predict for LGBTQ. According to our observations, we find out that the fortunetellers face a challenge of using compulsory heterosexuality in predicting LGBTQ populations. This challenge emerging nowadays is based on many social facts and histories, including legalizion of monogamy and same-sex marriage, westernization of fortunetelling knowledge, the public accepting the LGBTQ concept, and (in)tolerance for LGBTQ in Taiwan. Our research method are text analysis and interview. The texts are the fortunetelling books which are published after 1911, the year the Republic of China establishes. We also interview some fortunetellers who have been doing their jobs more than 20 years. Nowadays, fortunetelling knowledge is coping the LGBTQ concept which just emerges since a century ago. This change not only questions compulsory heterosexuality in fortunetelling knowledge, but also shows a new understanding of sexuality in fortunetelling knowledge. The fortunetellers are reconfiguring fortunetelling knowledge for LGBTQ. This is not for making money. This is how a old knowledge adapts the social changes.

Cones, Spider Webs, and Teddy Bears: Reflections on Topologies of the Future and the Concept of Plausibility Yashar Saghai, Johns Hopkins University

In a 2014 article on the concept of plausibility in scenario planning, perhaps the most prominent method used in futures studies, Rafael Ramirez and Cynthia Selin write: “That the topology of the future is assumed to be conical, typically depicted sideways, starting from a single point today and moving to a broader set of equi-possible future states […] is puzzling […] For all we know, in some situations the future is tetrahedral and in others, it takes the form of a teddy bear” (Foresight 16(1): 56). My goal is to take up this problem primarily from a philosophical standpoint and to outline steps towards a pragmatic topology of the multiple conceptual spaces between probable futures and logically possible futures, when engaged in context-dependent foresight exercises. The topology I suggest will draw on the rich literature in futures studies on plausibility (and its cousins), as well as relevant research in contemporary philosophy (e.g., on “political and social feasibility” and “moral and political imagination”), theoretical reflections by historians and philosophers of history (e.g., on “plausible pasts” and “histories of the future” based on ampliative inference from piecemeal evidence), and the cognitive study of fictional and nonfictional narratives (e.g., on “verisimilitude,” “narrative coherence”). This paper contributes to STS through an exploration of how and why futures studies order time, anticipate affordances for intervention, build and revise their epistemic space and tools. Drawing from philosophy, history, and cognitive science, It suggests a new pathway for tackling this problem within an STS framework.

Chairs: Kuan-Hung Lo, Virginia Tech
Yuh Chern Lin, National Tsing-Hua University

142. Surveillance and Security

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Kent

Participants:

The Origins of the Internet Infrastructure Privatization: a Historical Approach to Internet Exchange Points Fernanda Ribeiro Rosa, American University

There is a lack of public understanding about how the Internet works. The Internet is an arrangement of interconnected private networks, each of them with different types of technical and political control (Abbate, 1999; Roberts et al., 2011; DeNardis, 2014). How these networks connect to each other and what kind of agreements sustains the Internet infrastructure are not topics enough diffused. The goal of the present paper is to illuminate the sociotechnical (Winner, 1986; Latour, 1999) aspects of Internet Exchange Points (IXPs), making visible some of the social political and economic values at stake. Centralized points that facilitate network interconnections within sovereign states, IXPs allow to show that the Internet is a global system that is vastly dependent on structures located in national territories (Nye, 2014). I will address the historical development of IXPs to show how they have become central to understand high public interest issues such as digital divide, surveillance, infrastructure dependence among sovereign states, as well as the Internet economics and the current privatization of Internet governance. Latour’s (2008) methodological advice to look at an object of study in stages where the networks of relations are more likely to be clearly understood, guides the historical approach in the present work. To do that, this research-based paper will encompass mixed methods, including documental research built on government and companies’ archives crossed with literature review about the history of the Internet. The methods also include interviews with individuals who were involved in the deployment of pioneering interconnection facilities, or the IXPs precursors. This will allow to access tacit knowledge not yet unveiled about IXPs’ design, governance, deployment and its social, political and economic significance nowadays.

Recessive Objects: Surveillance and the (Dis)appearance of fact Sun-ha Hong, MIT

Recessive objects are things which promise to extend our knowledge, but thereby publicize the very uncertainty threatening that knowing. (1) The Snowden Files, an indefinable archive of state secrets leaking profusely since 2013, claims a special evidential force in the name of public transparency. But what does it mean to know about a vast state surveillance system, even as it operates almost entirely removed from individuals’ sensory experience? How can the public render judgment when proof of surveillance’s efficacy is itself classified? (2) The latest generation of self-tracking devices promise machines that “know you better than you know yourself” – but what kind of self-knowledge is it when we learn about our bodies through machines that track us in ways our senses cannot follow? Recessive objects rest at the intersection of public imagination, material artefact and the operational logic of new technologies. They address longstanding questions about the social production
Welfare Technologies and Surveillance in Care Work for Calculating & Countering Surveillance Risks: Translations in cities’, intelligent autonomous systems, and preemptive security, risks of emerging phenomena like the ‘internet of things’, ‘smart infrastructures’(1989; 1999), with the work of critical data and Susan Leigh Star on ‘boundary objects’ and ‘boundary doctoral research, which bridges surveillance studies and STS understand security in practice. The paper draws upon my using translations and boundary objects as an analytical lens to the responsibilities placed on chronically under-resourced civil society actors. The presumption of monitoring and tracking has become a central subject of concern to civil society. The responsibility of the ‘surveillance subject’ extends to the ability to anticipate the likelihood of one kind of security threat over another; to apply risk management strategies to determine the appropriate course of action in fearful and uncertain circumstances; and to own responsibility for the impacts of any ensuing threats. With the risks of emerging phenomena like the ‘internet of things’, ‘smart cities’, intelligent autonomous systems, and preemptive security, the responsibilities placed on chronically under-resourced civil society actors are greater than ever. This paper investigates the practices civil society actors and affiliated technical communities turn to in order to calculate and counter these emerging risks, using translations and boundary objects as an analytical lens to understand security in practice. The paper draws upon my doctoral research, which bridges surveillance studies and STS approaches to the study of risk, security, and information infrastructures, including the work of Michel Callon and John Law (2005) on calculative practices and Geoffrey Bowker and Susan Leigh Star on ‘boundary objects’ and ‘boundary infrastructures’(1989; 1999), with the work of critical data and critical security scholars such as Louise Amoore and Claudia Aradu. The research is done through participant observation, document analysis, and extensive semi-structured interviewing, crossing national boundaries in order to trace transnational interactions. The paper draws upon document analysis of different risk and threat modeling frameworks, and data from interviews conducted with privacy engineers, human rights defenders, activists, and security industry professionals.

Welfare Technologies and Surveillance in Care Work for Elderly Citizens’ Agnete Meldgaard Hansen, Department of People and Technology, Roskilde University; Denmark; Annette Kamp, Department of People and Technology, Roskilde University, Denmark; Sidsel Lond Grosen, Department of People and Technology, Roskilde University, Denmark; Sinne Ballegaard, KORA, the Danish Institute for Local and Regional Government Research

Encompassing technologies elsewhere categorized as ambient assisted living technologies and telecare technologies, the politically vested concept of ‘welfare technologies’ has gained currency in the Scandinavian welfare states over the last decade. Welfare technologies are increasingly used in a variety of settings in Denmark (Mortensen, 2015), where they are envisioned as leading to a new and smarter form of welfare state service delivery, promising increased efficiency, better quality, and citizen empowerment. Based on two ethnographic field studies we discuss how selected welfare technologies facilitate care and surveillance of citizens in different manners and with different consequences for care relationships between citizens and eldercare professionals. We focus on a technology facilitating ‘virtual homecare visits’ in a municipal homecare service, as well as ‘intelligent floors’ in an eldercare center. Virtual home care entails the performance of specific home care services by means of video conversations rather than physical visits in citizens’ homes (e.g. reminding citizens to take their pills). The eldercare center’s intelligent floors are equipped with sensors, which communicate the movements of residents to staff members through notifications on their smartphones (e.g. has a resident fallen down, or left his/her apartment). In line with other scholars (e.g. Oudshorn, 2009; Pols, 2010) we focus on how technologies, rather than simply replacing a human function or neutrally facilitate communication and information, transform care work and care relationships, and depart in a discussion of surveillance as not in opposition to, but intertwined with and preconditioning care. Our study shows that care relations are changing in different ways in relation to the use of the studied surveillance technologies in association with the functionality and use of the technology in relation to local and national discourses and practices. In our cases the respective visibility and invisibility of surveillance as well as the extent of surveillance facilitated with the technologies, come to have great impact on the care relationships developed, but in quite different ways. In both cases the new configurations of responsibilities and (dis)empowerment of citizens, exist in a delicate balance with professional power and professionals’ legal responsibility to secure the health and wellbeing of citizens in their care. We argue that the manner in which issues of trust and surveillance are brought to the fore of care relationships does not necessarily correspond to the extent of surveillance, but rests on the organizational regime, general framing (such as ‘controlling compliance’ or ‘safe, responsive and individualized care’) and the types of interactions facilitated by the technology.

Innovating the Problem Away? Exploring the Possibilities and Perils of Technologizing Sexual Assault Prevention Deborah White, Trent University; Lesley McMillan, Glasgow Caledonian University

Sexual violence is a significant global problem. States worldwide have been largely ineffective at reducing rape and sexual assault, despite policy/law reforms and initiatives such as educational and self-defense programs. In the context of this inefficacy, we are witnessing the emergence of an array of new technologies targeted at women for the purposes of preventing or mitigating against rape. Originating primarily from the commercial sector and ‘social impact entrepreneurs’, and promoted largely through the internet, these tools include a variety of apps for mobile phones (e.g., to alert others to a woman’s location if being assaulted, to indicate consent or non-consent in social situations, to allow a victim to confidentially audio and video record contemporaneous evidence of an incident utilizing geo-coding technology); signal and alarm emitting wearable technology (e.g., ‘fashionable jewellery’, ‘personal space dresses’, a bra that ‘unclasps only when a woman is feeling love’); and, internal and external body devices (e.g., date-rape drug detecting nail polish, anti-rape condoms and tampons). Based on a content analysis of websites promoting such instruments, we critically examine these technologies in terms of the inscription of gender relations and the potential limitations and unintended physical and legal consequences they may hold for women. We posit wider practical and policy implications of this increased technologization with respect to individualized responsibilization, depoliticization and commodification of sexual assault prevention. In addition to contributing an empirically-grounded analysis of novel corporeal and communications technologies to the extant STS literature, we offer theoretical considerations in relation to feminist understandings of the (in)sensibilities of anti-rape technologies in general.

Chair: Deborah White, Trent University

143. #QueerSTS4S: Third Annual Happy Hour Meetup
Reception
5:30 to 7:00 pm
Sheraton Boston: The Pour House, 907 Boylston St.
Co-sponsored by the 4S Council, 6S, MIT Program in STS, University of Michigan Program in STS, University of Michigan Department of
American Culture, and the Technoscience Research Unit at the University of Toronto.

Chairs:
Mitali Thakor  
Stephen Molldrem, The University of Michigan

144. 4S Awards Plenary
Plenary Session  
6:00 to 7:30 pm  
Sheraton Boston: Floor 2 - Constitution

145. Tapuya Reception (by invitation only)
Reception  
7:30 to 8:30 pm  
Sheraton Boston: Floor 3 - Commonwealth  

146. 4S Council and Prize Dinner (by invitation only)
Reception  
8:00 to 10:00 pm  
Sheraton Boston: Clery’s, 113 Dartmouth St.

147. Harvard STS Reception (by invitation only)
Special Event  
8:00 to 10:00 pm  
Sheraton Boston: Floor 5 - Public Garden

148. Valuation Studies Meet-up
Reception  
8:00 to 9:30 pm  
Sheraton Boston: off-site event  
For location, follow @Val Studies or visit: http://valuationstudies.liu.se/News/  
Chair:  
Claes-Fredrik Holgesson, Linköping University, Technology and Social Change

FRIDAY, SEPTEMBER, 1

149. Racism and Health I
Traditional (Closed) Panel  
9:00 to 10:30 am  
Sheraton Boston: Floor 3 - Beacon A  
Both racism and health are in/sensible: elusive to define and measure, and yet urgent and palpable. What can scholars in science and technology studies contribute to understanding how racism and health intersect in science and in society? This open panel welcomes a broad range of approaches to this question. Papers might explore how social inequality becomes materially embodied; how scientists and social justice advocates mobilize data about the impact of racism for antiracist projects; the future of identity politics for health in shifting political landscapes in specific countries and transnationally; the epistemoanalytical practices of biological and social sciences that make truth claims about racism and health; the roles of pharmaceuticals, diagnostics, and other technologies in ameliorating/exacerbating inequality; the ways that pseudo/scientific racial narratives operate within and beyond scientific spheres; and much more. This open panel invites papers that make empirical and theoretical contributions to the intersectional, interdisciplinary viewpoints of how racism (not just race) alters modes of technoscience, knowledge production, and governance around health. It seeks to generate new networks and conversations among STS scholars to interrogate these vital questions.

Participants:
Pharmaceuticals, Health, and Citizenship in the Aftermath of Hurricane Katrina  
Anne Pollock, Georgia Tech  
This paper draws from a larger book project about ways in which extraordinary crises can reveal fundamental racialization of access to citizenship and health in the United States, and specifically from a chapter that focuses on the immediate aftermath of Hurricane Katrina. At the time, there was a great deal of worry among public health experts about the spread of infectious disease, but it was morbidity and mortality from chronic disease – especially cardiovascular disease – that emerged as a far greater problem. In this paper, I track the travels of pharmaceuticals in the aftermath of Hurricane Katrina to explore three key ways in which the response to the emergency exacerbated the preexisting precarity of the population, especially with regard to health. First, the harmful impact of the War on Drugs was reflected in an acute barrier to access to pharmaceuticals; pharmaceuticals that people brought with them to the Superdome outside of its original packaging were discarded by the National Guard, which prioritized restricting access to illicit drugs over facilitating access to licit ones. Second, drug donation programs provided some essential relief, but were inefficient and their provisions often inappropriate. Third, disruption of already tenuous continuity of care left many patients without knowledge of much less access to their prior pharmaceutical treatment regimens. Tracking these pharmaceutical travels reveals how (lack of) access to medicines reflected (lack of) access to citizenship and health for the racialized population impacted by the aftermath of Hurricane Katrina.

Racializing Refugees: On Medical Practice & Research
Michelle Munyikwa, University of Pennsylvania  
Based on ethnographic research within refugee-serving institutions in Philadelphia, this paper probes the relationship between physicians and the knowledge they both produce and consume about caring for refugees from around the world. First, I analyze how knowledge about refugees from different groups – whether racially-laden designations like “Asian” or “African” or national markers like Congolese or Burmese – circulates in clinical spaces as health care teams diagnose and treat refugees using standards of “evidence-based” medicine. I assess the primary literatures that refugee healthcare providers use to justify varying care plans, highlighting how race, while often unmentioned, structures the practice of refugee medicine. Then, I turn to the creation of knowledge about refugees, drawing on my participation in research conducted by physicians about refugee health. While these doctors often assert that they are studying cultural difference, I suggest that it is also race that structures their practices of knowledge-building. The implicit use of race as an analytic, not racism or economic injustice, often blinds physician-researchers to ways that structural racism and inequality are integral factors in refugee health disparities. Through these ethnographic explorations, then, I illuminate the ways that knowledge regimes inform practice and vice versa to produce an eminently racialized medical practice in these sites of care. I end with some reflections on how we might conduct a more just practice of refugee healthcare – and by extension, healthcare more generally – by shifting our gaze from the particulars of seemingly obvious cultural difference to social structure.

From One Drop to One Percent: The Impact of DNA Ancestry Tests on the Worldview of White Supremacists
Joan Donovan, University of California San Diego; Aaron Panofsky, University of California, Los Angeles  
Advances in population genetics and the direct-to-consumer marketing of DNA ancestry tests are challenging how groups fashion and maintain their identities. Most commonly, researchers focus on how Native Americans and African Americans’ identities are co-constructed through these new scientific narratives of history and human evolution. Until now though, few have looked at how white people use these tests to generate a sense of belonging to a group. As well, no one has taken on this controversial question: How do white supremacists understand and mobilize around this new genetic science?

Bounded Justice: Racism and the Ethics of Scientific
Knowledge Production Melissa Creary, University of Michigan, School of Public Health

Based on empirical data collected on the ways in which science is co-produced for sickle cell disease (SCD) in Brazil, this paper explores the ethical calculus of how science is legitimized. The static definition of SCD is reconfigured by the state and its Afro-Brazilian citizens in the co-production of health policy that is based on both biological and cultural distinction. These distinctions were attached to “blackness” despite a patient pool that spans the phenotypic spectrum. This reconfiguration occurred, in part, via the 1988 reformed federal constitution, which built in language that mandated that SCD communities had to be a part of the development, maintenance, and evaluation of health policy in conjunction with Ministry of Health officials. Despite this constitutional mandate for inclusion in policy, the societal and cultural influences to genomic discourse provided by SCD activists are discredited by scientists. There is a failure to recognize the impact of culture and history on science, in the same way that the State and others do so for policy. Bounded justice, as I define it, is an attempt to distribute health rights without disturbing the underlying mechanisms that generated initial inequalities. Its performance hinges on the historically-geographical context in which it is situated and can permeate any number of medical, social, and ethical realms. This paper asks the question: how can we create a collaborative system of knowledge production that acknowledges both the societal barriers (racism and others) imprinted on marginal stakeholders as well as the marginality of the information itself?

Caring for the Indian Heart: The Role of Race at the Stanford South Asian Translational Heart Initiative Alyssa Botelho, Harvard University; David Shumway Jones, Harvard University

In 2013 Rajesh Dash established the Stanford South Asian Translational Heart Initiative (SSATHI). Noting that South Asians had the highest rate of heart disease hospitalization of any ethnic group in California, SSATHI promises to educate South Asians about their risk and provide targeted treatments. Presumably it also seeks to create a niche in a competitive medical marketplace. The desire to tailor health care to a specific ethnic group places SSATHI into a complicated lineage, including race-specific medications (BiDil) and walking shoes (Nike Air Nativ$. SSATHI’s specific claim, about South Asians’ peculiar susceptibility to heart disease, comes after a 50-year history of confusion about why South Asians suffer higher rates and more severe forms of heart disease than other ethnicities. Researchers have long hunted for some intrinsic factor to account for the disparity, with suspects ranging from small coronary arteries to genetic variants or the legacies of fetal development. This long search for the cause of South Asian susceptibility and tailored treatments is an incoherent project: as anthropologists have repeatedly reminded researchers, “South Asian” is not a natural kind, but an exceedingly heterogeneous category. Why and how does SSATHI assert the utility of South Asian as an analytic category nonetheless? SSATHI and the 50-year prehistory of the susceptibility discourse offer a valuable opportunity to explore how and why racial claims get made in medicine. While it is unfair to label the project as racist – SSATHI is an ameliorist endeavor – SSATHI demands exploration of the contested terrain between racial and racist.

Chair: Jonathan Metz, Vanderbilt MHS

150. Visual (In)Sensibilities I

Traditional (Closed) Panel 9:00 to 10:30 am Sheraton Boston: Floor 3 - Beacon B

Images are everywhere. They surround us, shape societal beliefs and value systems, and influence how we make sense of the world. Yet, images are not innocent representations of reality but created within societal practices and imbued with cultural values. Within contemporary visual cultures, visualizations are intrinsically linked to technological artifacts, such as cameras, x-rays, ultrasounds or MRIs. The development of digital image production and manipulation impinges in new ways on questions of the reproducibility and authenticity of images. At the same time, visualizations themselves can be regarded as technologies of perception that make the world sense-able. They play a fundamental role in the production of scientific knowledge (Latour & Woolgar) but also in the communication and dissemination of knowledge. While an important topic for STS in earlier years, recent STS engagements with images have been rather scarce. In this panel we want to re-open discussions of STS’ (in)responsibility towards the visual, promoting the social studies of scientific images and visualizations (SIV) (Burri & Dumit). We encourage contributions that investigate how visualizations make the world sense-able, focusing on the practices of imaging and imagining. Contributions may look at how (scientific) images are part of a three-dimensional (artifacts, as static and moving objects, etc.), what kind of role they play within knowledge production, as well as at what happens when images travel beyond their contexts of production and engagement. We also encourage studies looking at the role of images in science popularization and communication.

Participants:

Trained Eyes vs Mechanical Objectivity: Enhancing Professional Vision in Embryo Imaging Manuela Perrotta, Queen Mary, University of London

Exploring the case of IVF (In Vitro Fertilization), the paper investigates two different models of professional visions’ inscription in Biomedical Imaging Technologies (BITs). This contribution stems from a research project that investigates the case of Time-Lapse Photography (TLP) in fertility treatments, which allows professionals and patients to see embryos at a very early stage. TLP is now available for monitoring the development of embryos and is used as a support in deciding which embryos to transfer. The present contribution focuses on the development and stabilization of two models: - Support Machines, supposed to enhance the embryologists’ professional vision, such as Embryoscope. This is a special incubator that includes a camera that is capable of visualising the embryos in the labs. The criteria to select the best embryos are defined by each laboratory where this device is used. The assumption seems to be that the role of the embryologists cannot be replaced by a software. - Automated Machines, which select better quality embryos through an algorithm, such as Eeva (Early Embryo Viability Assessment). As reported on the producer’s website “the Eeva Test was designed to provide your IVF team with reliable, objective information to select embryos with greater confidence”. In this case, the automated selection process is perceived as more reliable than human assessment. Our aim is to explore the contraposition between, on one hand, the use of BITs as a substitute of professional vision and, on the other, as its enhancement. Through document analysis (producers’ and clinics’ websites, promotional videos, patients’ and doctors’ testimonials, and newspapers’ articles) we examine how these machines mediate the creation of knowledge about the body and its understanding.

Fixing the Image Jenna Grant, University of Washington

In the midst of fieldwork on medical imaging in Phnom Penh, Dr. Chey, an obstetrician at a maternity hospital, reminded me of the three M’s of a medical problem: médecin, machine, malade (the doctor, the machine, and the patient). We were talking about color ultrasound imaging, and he explained that color is important for depicting fluid flow, but when purely ornamental, such as background tint, color can actually obscure clinical information. This disrupts the delicate alignment of the three M’s required to practice good medicine. In the x-ray waiting area of a large public hospital in Phnom Penh, a young man held a film of his grandmother’s chest up towards the light streaming in from the open windows. “Mais auv chibas,” he said, “It’s not really clear.” Did this indicate a malignancy of the body? Or did it have to do with the skill of the technician? Or perhaps the quality of the machine or the film? The x-ray image called attention to itself; it points beyond itself, too. To the grandmother’s lungs—the object of the image—but also to the machine, the film, the
doctor, the hospital. It does so, in part, because of the way it looks. Not clear. In this paper, I juxtapose studies of biomedical imaging in STS, in which the social construction of technology is a problem for depicting biological realities, and studies of photography in Asia, in which the imager, camera, and subject work in in-action to reveal potential qualities rather than capture reality. STS in Asia has tended to focus on the high-tech; looking to fields beyond the narrowly scientific and locations beyond East Asia and Singapore has the potential to further our understandings of the ways aesthetic conventions and expectations shape imaging and health practices.

Visualizing Illness: Making of Non-symptomatic Thyroid Cancer Patients Kim HeeWon, Korea Advanced Institute of Science and Technology (KAIST)

This paper scrutinizes the medical paradigm of standardization and evidence-based practice, claiming that the newly developed system to "sense" and diagnose thyroid cancer with an ultrasonographic device is one aspect of an ultrasound-based professional milieu built within the Korean medical society. Doctors have approved aggressive medical intervention to verify the risks of diseases at earlier stages. In the case of thyroid cancer, ultrasound, which is described as "a window to body", has become one of the most important devices for screening, diagnosis, and surgical practice. Drawing on the interviews with radiologists and surgeons as well as other medical researches in ultrasound image of malignant thyroid nodules, I demonstrate how ultrasonography has shaped the knowledge of thyroid cancer and the characteristics of thyroid cancer patients. I also follow the trajectory of medical professionals’ attempt to produce a standardized criteria of ultrasound image, TIRADS(Thyroid Image Reporting and Data System), to verify the malignancy of thyroid nodules and strengthen the basis of evidence-based medicine. Consequently, ultrasonography was able to gain its authority and credibility in discovering the non-symptomatic thyroid cancer. This study will contribute to the recent STS scholarship of visual representation in medicine; how medical devices shift the boundary between the normal and the pathological, how beliefs in medical images are built and collide with different perspectives and paradigms on health risks.

Sensing Mood through Images: Visualizations of Mood Disorders in Patient-reported Outcomes Technologies Fernando Valenzuela, Universidad Andres Bello

The development of images and visualizations has been fundamental to the emergence of mood disorders, such as bipolar and depressive disorders, both as epistemic objects and mental health issues (Dumit). Based on the analysis of documents, interviews and ethnographic observations in Santiago, Chile, this paper explores the use of images in technologies that use patient-reported outcomes (PRO) in diagnosing, (self)tracking and treating mood disorders. It first analyzes Kraepelin and Rehm’s imaging system (1915), that allowed for the emergence of manic-depression as a clinical diagnosis, and has greatly influenced the development of contemporary PRO technologies. It then focuses on a chain of three such technological systems: 1) the Life Chart Methodology, championed by the US National Institute of Mental Health since 1985, that achieved world-wide diffusion; 2) the Chronorecord telemedicine system, that tightly coupled clinical psychiatry with scientific research; 3) and an array of more recent technologies, like Baobab Network (Chile) and Questlink (Netherlands), that aim at using portable, low-cost technologies to track psychiatric patients (and doctors) in real time. These technologies are described as inscription devices (Latour & Woolgar), that allow sensing and transporting mood states through networks that reach far beyond the psychiatric clinic. Emphasis is given to the effects that the implementation of these technologies has had on the ways mental health and the self are understood and enacted, as well as to its consequences in the delegation patterns that characterize sociotechnical networks (Akrich). This paper is part of a wider research project addressing the implementation of telemedicine technologies in Chile (TeCCaS).


This presentation uses postphenomenology and historical research to explore the deployment of and motivation for ekphrasis in The Ultrasound Informed Consent Act. The Ultrasound Informed Consent Act- H.R. 492 is a federal bill that seeks to compel US abortion providers to display and detail ultrasound images of fetuses to abortion seekers. Some form of the Act is law in thirteen states, with similar legislation being considered in many more. A summary of the Act states providers are “to perform an obstetric ultrasound on the pregnant woman, provide a simultaneous explanation of what the ultrasound is depicting, display the ultrasound images so the woman may view them, and provide a complete medical description of the images, including the dimensions of the embryo or fetus, cardiac activity if present and visible, and the presence of external members and internal organs if present and viewable." The Act prescribes what is in poetics and rhetoric called an ekphrasis, a detailed description bringing an image before the eyes. Ekphrases have been used since Ancient Greece to make present for readers artistic, technical, mathematical, scientific, and medical artifacts. In the case of the Ultrasound Informed Consent Act, the liminal figure of the fetus is made present through neonatal technology and vivid description in order to ‘inform’ women on their abortions. This presentation contributes to STS and postphenomenological investigations on the role of mediating technologies like ultrasound to bring images (and the ethical situations they create) to life.

Chair: Dorothea Born, University of Vienna

151. (De)construction of Nuclear Systems

Sensing Mood through Images: Visualizations of Mood Disorders in Patient-reported Outcomes Technologies Fernando Valenzuela, Universidad Andres Bello

Nuclear artifacts and systems—be they weapons or reactors—are developed by technocratic elites operating both within and outside formal systems of accountability. Arguments about the safety of nuclear power plants as well as nuclear weapons’ role in international stability depend on articulating visions of the future and particular understandings of uncertainty. While nuclear technologies are often developed in classified or proprietary contexts, governments employ these technologies in proofs of considerable global import (MacKenzie 1990). For instance, claims about the fuel used in nuclear-armed missiles—whose specific contents are classified—are used as evidence for the stability and survivability of particular nuclear postures. Feedback on nuclear claims is rare, given the contingent nature of nuclear accidents and the scarcity of experimentation deemed relevant to deterrence and nonproliferation dynamics. This raises questions about political authority and democracy as well as the authority to produce and negotiate knowledge with classified features. We explore “anticipatory knowledge” (Gusterson 2008) as a lens for thinking about narratives and decision-making around nuclear technologies. Through this panel we interrogate two opposing processes: how nuclear designs are constructed and legitimized and, conversely, when these designs are rendered illegitimate or obsolete. What constitutes a proof in a nuclear context and how is knowledge produced? How do shocks to prevailing anticipatory visions of nuclear technologies affect these dynamics? How are histories of nuclear weapons and biological weapons entangled? This panel, comprised of designers and analysts of nuclear systems, seeks to bridge discussions between nuclear engineering, technology policy, and STS on the ontology and contexts of nuclear knowledge.

Participants:

Experimentally Proving Nuclear Disarmament: Certainty and Secrecy in the Black Sea Elite Immelman, MIT

An unlikely experiment occurred in the summer of 1989. Non-governmental scientists from the United States and the Soviet Union were granted access to a Soviet tactical nuclear warhead. They measured its gamma and neutron spectra in the hopes of...
determining how a warhead could be uniquely identified and verifying without compromising sensitive information, thereby exploring what a proof of warhead reductions might look like. By taking up the case of the so-called Black Sea Experiments, I explore what it means for a warhead to be sensible and investigate the ways the varying reliability of sensing technologies has been interpreted by the epistemic communities involved in nuclear weapons verification. Drawing on the work of Thomas Gieryn and Gabrielle Hecht, I explore how the boundaries that establish who can produce nuclear weapons verification knowledge are negotiated. Relying on archival evidence and oral history interviews, I argue that the Black Sea Experiments failed to demonstrate how a nuclear warhead could be verified owing to the experiment’s political irrelicability, the U.S. Department of Energy’s tendency to equate weapon identification with the release of classified information, and the experimenters’ miscalculation about the experiment’s technopolitical stakes. This work aims to contribute to STS scholarship on nuclear weapons epistemology, proof-making, and the formation of science policy.

Unintended Consequences: (De)Constructing Utility Narratives of Biological Weapons

Biological weapons are perceived, similarly to nuclear weapons, to be powerful, even apocalyptic, weapons, yet they were unilaterally renounced by the U.S. in 1969 and subsequently banned internationally in 1972 via the Biological Weapons Convention (BWC). The banning of biological weapons was motivated in part by security interests; biological weapons were inexpensive and the U.S. sought to keep strategic weapons expensive to inhibit their diffusion (Meselson 2003). In order to help persuade states to renounce biological weapons and join the BWC, the Nixon administration championed the narrative that biological weapons were useless, especially in the shadow of nuclear weapons. This narrative was not universally accepted, as indicated by the USSR’s massive expansion of its biological weapons program immediately following the signing of the BWC. Drawing on primary documents and the scientific literature on biological weapons, I explore this narrative of uselessness in the U.S. political sphere and academic discourse, examining its origin, employment, and adoption and compare it to the utility narrative which took hold for nuclear weapons. I then explore how the narrative was invoked in the U.S. response to uncertain reports that a clandestine Soviet weapons plant accidentally released anthrax in the city of Sverdlovsk. In the debate over the incident, the uselessness narrative was used to discredit the idea that the Soviets would develop biological weapons, thus potentially hindering detection of the program. This work aims to contribute to the literature on agnotology, exploring why particular narratives do or do not endure.

Ontologies of Nuclear Safety

The Fukushima accident in 2011 led to an ontological crisis in the nuclear operating, design and regulatory communities leading each to re-examine what it meant for a reactor to be ‘safe’. Even as these communities sought to forge consensus on the ‘root causes’ of the accident, several reactor design projects were underway. In a cross-sectional study of these contemporary reactor design projects through in-depth, open-ended interviews with 26 American reactor designers I show how the lack of an industry-wide consensus led these designers to have individual experiences of and reactions to the accident, leading ultimately to diverging design responses. With the Fukushima accident in the foreground and wishing to make their reactor designs safer, these designers sought not only to elevate levels of safety in an absolute sense but discovered novel design moves that made their technological designs safe in new ways. What is striking is that no new scientific or technological developments were needed to create these new designs, only a perceptual shift in the reactor designers’ notions of safety. Eventually a consensus emerged within the regulatory and operating communities, identifying ‘culture’ as the culprit at the site of the Fukushima accident while reaffirming a previous generation of safety standards. By then, however, the reactor designers had reconstituted what it meant for a reactor to be safe which led to two diverging narratives of safety – one for the old reactors and one for the new. Drawing on prior work on narrative (Ewick and Silbey 1995) and analytical culture (Brock and Jacoby 2016), I use this case of nuclear reactor safety to suggest an argument that may apply more broadly to the governance of complex technical systems: Homogenous analytical cultures create a tunnel vision such that key players are unable to recognize opportunities for invention and improvement in the design and regulation of complex systems thus stymying their technological evolution and making them vulnerable to failure and instability.

Chair: Ellie Immerman, MIT
Discussant: Allison Macfarlane, George Washington University

152. Sensing Robots

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Beacon E

To explore how the world is made ‘sense-able’ it is worthwhile to look at how we build technology that is supposed to coexist in everyday lifeworlds. Recent developments in robotics are challenging this question. Whether commercial products like “Libo” or academic endeavours, robots will inhabit our homes and workplaces. Sensing the world is crucial for this undertaking, e.g. the widespread “see, plan, act” robot control methodology. In order to cope with human environments, robots can not only ‘see’ and ‘hear’, they possess senses beyond that, eventually also beyond human capacity. We want to discuss how and what robots for everyday worlds sense, and how that might change the sensing of and in these social worlds. These questions relate to comprehensive perspectives on science and technology. What are robots supposed to ‘sense’? Which knowledge of the sensible world is hereby inscribed into robots? Which concepts of sensing constitute robotics? How are usage scenarios and users thereby pre-scripted? How is the perceptible world made into a laboratory? And beyond this, what knowledge about the world is created while building such sensible artifacts? Furthermore, we learn about our own (in)sensibilities when we examine the design and construction of robotic technology mediating perception. What does STS perceive of robotics as practice? Do we have the methods and theories to address the blind spots of the sensing machines? What are the epistemics of robots sensing everyday worlds? How does STS reconstruct sensing robots (including material practices; technical limitations)?

Participants:
Ethics and Sensibility in Designing a Social Robot for Care (with Care) Núria Vallès, Universitat Autònoma de Barcelona; Miquel Domènech, Universitat Autònoma de Barcelona

Over the last decades, robots have been developed with the aim of incorporating them into the social environments of our daily lives. One of the most prolific areas where we can witness such a process is the realm of health, specially with caring robots. Their abilities to interact with people open a huge bulk of possibilities to work on the emotional and social dimensions of health. Beyond the technological developments that this implies, new ethical, political, and social challenges are also raised. However, care robots’ development has not been accompanied by a broader and widespread reflection from the different actors concerned. This research methodology is based on qualitative techniques, including: in-depth interviews to experts from different fields (political, legal, technological and medical); focus groups with health personnel; focus groups with family members of hospitalized children and; finally, a participative process with children with any kind of relationship with a children’s hospital. Research and development of this ethical framework is done from the...
perspective of the ethics of care and empirical ethics. Furthermore, we take the opportunity that offers robotics' development for reflecting about our own humankind and the sensibilities of the world we like to live in.

**From Laboratory to Robot Competition Arne Maibaum, TU Berlin**

Engineers and scientists create robots using laboratories. Much has been written about how science is done within these laboratories. Laboratory methods mainly focus on cause-and-effect relations between independent and dependent variables. The usual strategy is to reduce variables by reducing complexity. Reducing complexity worked out for decades robots while were limited to factory shop floors, where the environment could be controlled to fit the needs of the robots. However, recently robots enter real homes and the method has to change accordingly.

Researchers who are conducting studies in real homes have much less control over the variables. Especially the sensory overload of the massively complex everyday worlds overexerts the capabilities of recent robotics in its fundamental research state. Nevertheless it seems that currently robot research almost entirely focuses on application scenarios for everyday worlds. I want to show how competitions are used to fill the gap between over-fitted laboratories and the overcomplex real worlds by creating an arena, which complexity exceeds the laboratory’s, but still bears less contingency than the everyday worlds. Along the line of laboratory research I want to show how the practice of utilizing these competitions to get more sensory feedback from a controllable yet open environment becomes an epistemic tool of building robots. I will draw from empirical examples as the RoboCup@Home which was initiated when field test in real (closed) supermarkets failed drastically due to complexity overload.

**Different Modes of Engagement - The Sensibilities of Feeding Assistive Robotics Niels Christian Nickelsen, Aarhus University, Department of Education**

Assistive robotics are a new factor to be relied upon in caring for the disabled and the elderly. A number of feeding assistive robotics (FAR) appear in the literature. However, very few ethnographic studies have explored the reception. This is the case although there are significant potential and also a row of unsolved problems. Challenges have been reported concerning the challenges the care providers have in succeeding to create a relevant interplay between the disabled body and the (FAR).

When this effort is unsuccessful, the result is stressful work and demeaning situations for the disabled and for caregivers. In this paper, I take up two ethnographic resources: 1) retrospective studies of the design process of the ‘Bestic’-FAR 2) an empirical study of the reception in a housing institution for the disabled of the ‘Neater-Eater’-FAR. Analysis of this material unravels the intermingling of a number of values from core participants, such as the disabled, the care assistants and the producer. This leads to a discussion of different modes of engagement focusing on the overall questions: To what extend are usage scenarios prescribed by the FAR? Taking STS as an analytic resource, this leads to a discussion of what the FAR is supposed to attend to and what implications that leads to. What knowledge of the sensible world is for instance inscripted into the FAR and how do different parties take this up? What do we learn about our own (in)sensibilities when we examine the design and use of feeding robotics?

**Sensing Emotions, Assembling Humans: Faces, Voices, and Ethics in South Korea’s Digital Companion Research Heesun Shin, Korea Advanced Institute of Science and Technology; Hanbyul Jeong, KAIST**

South Korea’s Ministry of Science, ICT, and Future Planning recently launched a 60 million-dollar research project to develop “autonomous digital companions.” One part of the project is devoted to the research on intelligent robots that will sense emotions of a human being and respond like a sentient entity. By going beyond tossing simple sentences like a ping-pong game, this robot is expected to carry out conversations with proper emotional and ethical reaction, which will make it worthy of the label “digital companion.” In this paper, we will present our effort to follow the engineers who make emotion-sensing robots. Instead of asking, as engineers do, how robots sense emotions, we ask how the engineers define emotion as a “sense-able” quality, how they make sense of a robot as a sentient being, and how they imagine the yet-undefined relationship between sentient robots and emotional humans. In their attempt to render human emotion machine-readable and – distinguishable, the engineers must classify and codify emotions, which requires analyses of facial expressions, voice tones, and speech contents. As these components of emotion are sensed and then assembled to create an emotion profile of a person, ethical concerns arise: How can we ensure ethically sustainable interaction with emotion-sensing robots? Can emotion-sensing robots sense even ethics? How could ethics research on emotion-sensing robots contribute to robotics and sociopolitical questions? Our research will show that the very idea of sensing emotions with and by machines is entangled with ethical questions about living with and as sentient beings.

**“Are you just sensitive or are you also human?” Sensing the Topography of Sensitive Social Robots and Sensible Humans Diego Compagna, Technische Universität Berlin**

In the development of social robots, their ability to be sensitive and/or sensible is of paramount importance. An autoethnographic approach was taken within the setting of a fabrication laboratory dedicated to the study of human-robot interaction, and focus group interviews were conducted with both engineers and (the presumed) target groups for social robots. The data shows a clear distinction between the concepts of being sensitive and being sensible.

To work out the striking difference between sensible (humans) and sensitive (robots), it is helpful to focus two possible domains of social robots: housework and childcare. The analysis of the data shows a clear distinction between homework and childcare for both groups, engineers and target users. In respect to the development of social robots for homework and childcare, the assertion of gender stereotypes is very evident, especially towards the role of motherhood, which is assigned to women. The analysis of the term “being sensible” is also very interesting. It was often used to engender a topography that defined legitimate social actors as humans, as opposed to (social) robots. To be “sensitive” is attributed to both an organic, living entity (childcare) and a highly functional robot (homework). Being sensible, however, is restricted to humans and linked to the dubious assumption of “having a soul.” These findings are also point toward the peculiarity of new interactive technology endangering humans’ status in modern societies as the sole social actors.

**Chair: Arne Maibaum, TU Berlin**

**153. Interspecies Sensibilities I**

**Traditional (Closed) Panel 9:00 to 10:30 am Sheraton Boston: Floor 3 - Beacon F**

This is a panel for those engaged in sense-making activities with, for, and across multiple species. We welcome papers that address the creative design, skills development, and research opportunities of such work as well as the myriad reasons that social scientists might choose to do it. We especially welcome papers that draw on ethnographic, historical or other humanistic methods to talk about zoos, fields, labs, etc., as critical sites of inquiry, facilitating a rich, transdisciplinary discussion of interspecies research sensibilities.

**Participants:**

**Human-Tick Sensory Relations: Tacit Knowledge in the Scientific Practice of Lyme Disease Risk Research Jessica Somers, SUNY Albany**

Scientists and field assistants who work in a Lyme disease laboratory and experimental woodland plots in New York State engage in human-tick sensory relations that are integral to...
scientific practice and knowledge production. The blacklegged tick (Ixodes scapularis) is an essential pathogen to my scientist and field assistant interlocutors who investigate how the risk for Lyme disease is shaped by interactions among different organisms and environments. During each stage of a blacklegged tick’s life cycle, it uses a suite of senses to find a blood meal from an animal. After a blacklegged tick takes a blood meal from an animal that carries the Lyme disease causing bacterium (Borrelia burgdorferi), it can transmit the bacterium to humans and other non-human animals during a future feeding. In order to locate blacklegged ticks in the field, and work with them in the lab, the research team must enmesh themselves in the sensory world of the tick. Through ethnographic research I show how scientific knowledge production of Lyme disease risk rests on the practice of tacit knowledge whereby the scientific team uses their bodies and biosignatures as “man bait” for ticks. As “man bait,” the team attracts, examines, and produces knowledge about blacklegged ticks and their disease transmitting abilities. In this paper I situate human-tick sensory relations within social studies of science debates that examine the politics of sensory perception in scientific practice. From this position, I argue human-tick sensibility is a form of tacit knowledge embedded in the scientific practice of Lyme disease risk research.

Cross-Species Intimacy in the Lab: Bonding and Affect Between Animal Care Technicians and Lab Animals
Caroline Warren, Emory University
This paper will explore the ways in which intimacy between animal care technicians and the non-human laboratory animals they care for is encouraged and appropriated for the purpose of producing “good data” and “better” scientific knowledge. In the past two decades, scholarship on the care of nonhuman laboratory animals has indicated that strong, positive bonds between humans and lab animals is an important aspect of animal care that leads to a reduction in “abnormal behaviors” and less stressed, more cooperative animals (e.g. Coleman 2011). At the same time, many have identified the epistemological difficulties associated with animal carers becoming “too attached” to the animals in their care. Because of this, questions of compassion and its limits are widely discussed in trade magazines, journals and websites targeted at lab animal technicians. In this paper, I will examine a range of articles, surveys, trainings and webinars from these publications to learn more about the standards that determine the “appropriate” degree of intimacy and bonding between technicians and the animals they care for. This analysis will allow me to explore a number of questions critical to STS and multispecies studies scholars: what emotions, affects and “feelings for the organism” are seen as integral to the production of scientific knowledge, and which kinds of human-animal intimacy in the lab are deemed excessive, inappropriate, and epistemologically problematic? What boundaries between humans and non-human lab animals are disrupted or reinscribed by the partial embrace of affect and emotion in this area of technoscience?

Sense Making in Salvation: Embodied Ethnographies of Dog Rescue
Natalie Porter, University of Notre Dame; Ann Marie Thornburg, University of Notre Dame
This paper draws on ongoing research with rescue dogs to address two kinds of sense-making in interspecies ethnographic contexts. Rescue dogs have varied histories, varied degrees of sociability with humans and other animals, and varied physical abilities and cognitive landscapes. And yet, they all must be prepared for life as household pets. Conducting research with rescue dogs involves positioning ourselves both as researchers and as volunteers, which requires shifting (and sometimes collapsing) modes of sense-making. In rescue contexts, volunteers engage in sense-making to answer questions about animals’ histories and capabilities so they can most effectively prepare them for adoption. Sense-making includes embodied communication with dogs as well as other volunteers, and is an interventionist endeavor driven by a moral commitment to save lives. In the context of ethnographic investigation, sense-making aims to answer questions about how and when dogs become “rescue dogs” in relation to humans, and the degree of heterogeneity that can be accommodated by this category. Sense-making in this context is both an ontological and praxiological endeavor, a way of querying what is and can be known about nonhuman animals. We suggest that both modes of sense-making delegate their questions to the body, and it is through our bodily and bodily encounters with dogs that we navigate the tension between research and intervention; knowing and wondering/asking (Desperte 2013).

Smartification, Cows and Farmers: Exploring Technologized Interspecies Relations
Laura Trachte, Technical University Munich, MCTS
Smartification touches upon farm animals – and changes human-animal relations by technological means. ‘Smart farming’ integrates technologies, data and animals through the internet of things: computers, sensing devices, robots and cows are connected and communicate with one another. Smart livestock farming promises to improve animal health and welfare by focusing on needs of individual animals. It aims at enabling farmers to ‘(re-)connect’ with individual animals – by using technologies giving farmers ‘additional hands, ears and eyes’. Critics, however, raise issues about possible alienation between animals and farmers. Beyond ‘friend or foe’ narratives, this paper draws attention to questions of animals’ agency and possible ‘empowerment’ by new high-tech and robotization. As smart farming has caught attention from both, politics and science, EU funding supports research on technology development, application and policy options. Yet, within the Responsible Innovation framework especially ethicists have investigated issues revolving around new farming methods. Their central fear is that smart farming adds to the objectification of animals and supports alienation. Rather than simply doomong high-tech as animals’ foe, this paper suggests that fully automatized stables supports with milking and feeding robots may expand a cow’s agency in comparison to current farming systems. Re-connection or alienation of farmers and animals? Animal agency by technological means? A critical perspective focusing on conditions and effects of technologization processes can inform a debate on interspecies sensibilities. The presentation will outline how Indigenous San peoples, scientists, and growers in South Africa engaged in multiple practices of knowledge-making and claim-making around the same Hoodia gordoni succulent plant. Based upon an ethnography of struggles over the patenting of Hoodia, I analyze how Indigenous San made claims to Hoodia as plant from nature, scientists made sense of Hoodia as molecule, and growers asserted attachment to Hoodia as cultivated plant in order to assert belonging in a shifting South African politics through securing rights to patent ownership and benefit sharing. At the same time, I also examine how these multiple modalities of Hoodia materiality provoked and reinvented the very claims of ownership that had sought to contain them. The way Hoodia plants evolved in patchy spatial distributions, grew too slowly when cultivated, and interacted with the human body as steroidal glycoside molecules shows how forms of nonhuman matter can enact moments of fissure within interspecies relations and associated modes of belonging. Through this analysis, I demonstrate the importance of examining interspecies sensibilities across multiple modalities of a single species, in this case, Hoodia as a molecule, as a cultivated plant, and as a plant from nature in order to understand how different ways of
154. Communicating Science

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Beacon G

Participants:

Natural and Sustainable: How the use of Wolbachia to Control the Population of Aedes aegypti is Depicted to the Public
Claudia Santos Turco, HCTE-UFRJ / FIOCRUZ; Eduardo Nazareth Pativa, Universidade Federal do Rio de Janeiro

The use of Wolbachia in the control of Aedes aegypti mosquitoes is a topic that has been widely discussed. Wolbachia, a type of intracellular bacteria, is used in the control of Aedes aegypti population. In order to face this challenge, emerging technologies have been developed, such as the introduction of Wolbachia into Aedes aegypti as a biological control agent to prevent virus transmission. The transmission of viruses is prevented by a reduced lifespan of female mosquitoes and an increased resistance against a wide range of viruses, such as dengue and Zika. The objective of this work is to discuss this new technology of biological control of mosquitoes, from the point of view of environmental ethics. This work concentrates its efforts to analyze how the technology is depicted to Brazilian population, especially in the communities in which the contaminated mosquitoes are released. Characteristics associated with this technology – such as natural, sustainable and environmental friendly – will be revisited. The involvement of the communities affected by the mosquitoes’ release in the decision-making process will also be analyzed.

In Search for New Identity of Science Communication in Russia: Between Science Propaganda and Popular Science
Andrey Kozhanov; Higher School Of Economics, Moscow

After a long period of Science Propaganda in Russia as an official strategy for Science-Society interrelations we can see remarkable latest transformation of the field of Science Communication from mostly deficit model to more complicated hybrid attempts to build effective communication for scientific knowledge wide spreading. Increasing number of different forms and formats arises, based both on reminiscence of Soviet model of Science Education and modern forms of gamification and Science Representation. As a latent consequence of that, we can see intensive growth of Popular Science within many social groups and population in general. That belief system consists of dense expert knowledge, epistemic hybrid folk-knowledge, quasi-scientific knowledge and practical common sense. Main research question here is whether new movement for Science Communication in Russia will identify itself with nonreflexive scientific knowledge transfer to public or with promoting scientific pattern of rational and critical thinking as social and cognitive norms. Will it be new form of deficit model? Russian Science Communication dynamics shows from STS point of view how the differentiation of Science and Popular Science can detect new multi-directional model of co-production new Scientism Belief System and how street-level users can acquire Science associated behavior, trust in Science and Scientific literacy keeping and combining it with their Common Sense and Folk-knowledge.

Space Communication Strategies of Korean Government between 1950s and 1980s
Seungmi Chung, Virginia Tech

Communication strategies of the government has been important roles to earn the public supports in big science. It is the same in the Korean space program. Although the civilian space program in Korea started in the late 1980s, the Korean government started its trials to introduce and promote space programs to the public from the 1950s when Korea was one of the poorest countries. The government introduced the space news, especially about success of space programs inside and outside Korea very actively although Korea did not have any specific space program yet. The promotion had been performed through various ways including Daehan News and governmental documents. Daehan News, which were the government-made-video-clips, were shown in movie theaters before staring movies. Media perform the roles not only to help the governmental promotion but also to reflect the public response. This research analyzes the science communication strategy in space field of the Korean government and the public response between 1950s to 1980s. And it aims to understand how the Korean government tried the science communication in space field to establish a supportive environment for the space program when space programs did not exist yet and how its strategies have influenced the current Korean space program and public relation. The main sources are the Daehan News and government documents for the governmental strategy and the newspaper articles and other media sources for the public response. This research will help to understand the current space program and the public in Korea.

Learning from Mass Media, the Role of Media Reporters, and their Effects on Constructing of Public Understanding of Science
Midori Aoyagi, National Institute for Environmental Studies

People usually get news from mass media, and other measures such as SNS, word of mouth. Those “news” contains reporters’, or other people’s “interpretations” of the issues. They are not always “experts” or “professionals” of the issue. According to the public opinion survey carried out by NIES 2016, whose target was 3,000 Japanese male and females aged over 18 years old, the most respondents chose “critics or reporters who appears on the mass media” as the most trusted news sources, followed by the “experts or university professors”. The younger age groups tended to choose “SNS” and “friends or family members” as well. The problem here was that the contexts of the news on the mass media has large effects on public understanding of science and related social issues. The answers of knowledge quiz about the radioactivity as examples. We found that those who chose SNS or friends or family members, are more likely to choose wrong options in the quiz. From this survey results, we can discuss about the role of mass media on knowledge construction of publics, and the role of media reporters as well.

Scientists’ Use of Reddit as Science Communication
Noriko Hara, Indiana University; Jessica M. Abbazio, Indiana University

Traditionally, scientists use various means to help lay audiences to engage in public participation, such as policy making, dialogue, and knowledge production (Einsiedel, 2014). Science cafés and science exhibits have also been used widely, especially in Europe and Asia, for the purpose of creating a dialogue (Nielsen, et al., 2015). However, some scientists do not consider the interaction in science cafés effective (Mizumachi, et al., 2011). To reach out to the public, some celebrity scientists use other media, such as books, TV shows (e.g., Cosmos: A Spacetime Odyssey), and films. Recently, scientists are increasingly using social media to disseminate their research findings to both the general public and their colleagues (Collins, Shiffman, & Rock, 2016); in fact, Science (2014) has published the top 50 science stars of Twitter. While the use of Reddit by scientists has not yet become widespread, Reddit itself has attracted heavy traffic online; Alexa, which tracks daily visitors to websites, ranked Reddit 7th in the United States in early 2017. We investigate the subReddit /science, which has 15 million subscribers, in which scientists host AMAs (Ask Me Anything) threads. The scientists who have posted these threads ranged from an MIT computer scientist who created a Twitterbot to the
Contesting Harm

155. Contesting Harm
Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Beacon H

Participants:

Capricious Harms: Irritation and Workers’ Skin in the Industrial U.S., 1900-1930
J. Maxwell Rogoski, University of Pennsylvania

In 1923, a male employee of a Rochester, N.Y. lithography company developed a severe dermatitis due to work-related exposures to chronic acid. A consulting dermatologist, Dr. E. Wood Ruggles, documented a recurrent pattern of attacks that “almost ruined his skin,” eventually extended over his entire body, and resulted in a worker’s compensation hearing. Skin affections like this one—created by the friction between fragile bodies and the demands of a capitalist economy in transition—were a widespread source of occupational distress. In seeking to understand the nature of these injuries, dermatologists in the early 20th century articulated a ‘logic of irritation’ that differed from hazard, danger, or risk. The selectivity of the harm formed the heart of the challenge with which they grappled. As a researcher wrote in 1919, “One would find, right next to an especially virulent case, men performing exactly the same operations and handling the same stock, absolutely free from any sign of irritation.” By highlighting the importance of individual idiosyncrasy, irritation made clear the relational nature of any injury: between a particular substance and a particular person. The many people unaffected weighted the moral field of irritation’s logic toward finding fault within the worker him or herself—that displaced concern about the external irritants that produced such skin damage. Early industrial dermatology thus provides a vantage point to explore how irritation bounded and produced capricious harms in response to political and intellectual pressures, and how physicians relied on the flexible concept to ground professional expertise.

Chemicals, Germs and Domestic Micro-worlds: Exploring Competing Conceptions of Harm in Parental Hygiene Practices
Rachel Wakefield-Rann, University of Technology Sydney

The threats to human bodies present in everyday living environments are currently framed primarily in relation to ‘germ’-centric discourses about harm. The design of homes, domestic objects and appliances in late-modern societies explicitly reflect a fear of pathogenic microorganisms and a desire to exclude them from living spaces. The concern of this paper is whether, or to what extent, this dominant conception of the causes of harm is being undermined by emerging knowledge about a) the health effects of direct exposure to anti-bacterial and other chemicals used in domestic cleaning practices and b) how dominant cleaning regimes encourage impoverished communities of microorganisms within the domestic environment that undermine health, particularly for women and young children. Drawing on literature from the social and natural sciences, and situated interviews with parents of young children in Sydney, Australia, this paper investigates how these competing notions of harm enter into the ways parents attempt to establish and maintain safe living environments for their children. In doing so, this paper provides insights into if, and how, shifting conceptions of the primary causes of harm alter the way that parents attribute responsibility and blame for environmental health risks within their homes. The way harm is framed around these relative sources into the future could have significant implications how harm is politicised and action is targeted, and conversely, the extent to which responsibility for environmental health risks are individualised.

Contested Concepts of Harm in Scientific Studies on Marine Plastic Pollution
Max Liboiron, Memorial University of Newfoundland and Labrador

While marine plastic pollution has been documented by scientists since the 1950s, there are two separate concepts of harm used in scientific work when it discusses plastic contamination. First, and earliest, the mere presence of plastic in oceans was considered harmful. It was, in anthropologist Mary Douglas’ terms, “matter out of place,” and in itself, this contravention of order was considered harmful to the environment. Secondly, and more recently, there has been explicit push back on this concept of harm by a call for “demonstrated versus perceived” evidence for ecological harm at cellular, individual, species, and ecosystem scales. That is, harm must be an observable, ideally measurable, form of destruction at a recognizable scale. These two opposed concepts of harm are complicated by two factors. First, the two concepts are often part of the same study, article, or interview with scientists. Secondly, some of the mechanisms for observable harm have been found to be difficult to observe, such as genetic and latent effects from the endocrine disrupting chemicals associated with plastics. This paper looks at how these two concepts of harm are being used, contested, and leveraged in scientific work on marine plastic pollution, and theorizes how the two concepts’ uneasy coexistence may provide a case to synthesize anthropological and ethical concepts of harm with reductionist modern scientific concepts.

Rachel’s Story: The Lure of the Syringe
Nicole Vitale

This paper investigates the discourses, material practices and perception of the syringe as a mediating technology of Harm Reduction. Focusing on Rachel Whitear’s death from a heroin overdose in Britain in 2000, the photograph of Rachel’s dead body clasping a syringe that was released to the press, the school video education campaign ‘Rachel’s Story’ that followed, representations of Rachel’s Story by a contemporary artist in the Saatchi Gallery exhibition New Blood and a British National Party campaign, and evidence from two inquests into Rachel’s death, I compare the contrasting knowledge claims of Rachel’s experience of heroin addiction. In assembling Rachel’s Story I show how the syringe becomes central to defining the technical problem of injecting drug use and the solutions of how to deal with it. In positioning Harm Reduction relationally beyond the body I suggest Rachel’s Story situates the syringe as a controversial object that challenges real and imagined accounts of what happened. What’s at stake here are not just epistemological and ontological accounts of Rachel’s heroin addiction but what Stengers refers to as a symbiotic event that agitates, puzzles and transforms the governmental problem of the syringe in novel ways. By situating Rachel’s Story through an entanglement with the syringe this paper demonstrates the inventive power of the object to question and contest the insensibilities of the law, policy, populism and science.

Placebos, Nocebos and Meaning-Making
Ada Jaarsma, Mount Royal University

Placebos hold tremendous, if undertheorized, import for the growing emphasis in science and technology studies on the biosocial nature of meaning. At times delimited to specific entities like sugar pills or particular interventions like surgeries, medical researchers increasingly recognize that placebos are also at play in relational dynamics like the enthusiasm of clinicians when they prescribe drugs in convincing ways. Indeed, medical anthropologists and biomedical researchers seem to agree that “diagnosis is treatment,” a phrase that locates the “effects” or “meaning-responses” of placebos in the interactions between patients and their doctors. The white coat, the brand-name pill: these actants testify to the sensibility of efficacy. We “get better” because of such meaning-making action. At the same time, nocebo effects abound within the same contexts. Participants in clinical research trials sign permission forms that lay out
potential side effects—and many participants go on to experience those harmful effects, even if they are part of a placebo-controlled group. There is no clear bifurcation between healing and harm, in other words. Moreover, pharmaceutical drugs and other treatments take part in clinical trials in order to demonstrate the insensible nature of their efficacy by triumphing over placebos. Such treatments are inextricable, however, from the sensitivities of placebos and likely “work” because of such entanglements. This paper explores the role that placebos and nocebos play in gold standard biomedical practices, drawing out the porous lines between bodies and minds, healing and harm, efficacy and sensibility. It foregrounds the significance of placebos and nocebos for STS by foregrounding the role that biosocial meaning-making plays within biomedicine itself (the laboratory, the clinical trial, the clinic itself), as well as the possibilities it opens up for STS theorists who track the import of somatic and affective sensibilities for causation, efficacy and evidentiary knowledge claims.

Chair:
Nicole Vitellone

156. Techno-Jobs and Capital I: Bots, Automation, and Digitized Affective Labor
Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Berkeley

STS has a long tradition of inquiring about techno-work and providing foundations for studies of locality, partiality, contingency, and agency. Less attention is paid to the connections of techno-jobs to the systems of political economy in which they are embedded. The goal of this track is to encourage explicit discussion of the ways these new jobs are shaped by and sustain capital, and how they relate to broader shifts in the organization of labor and workers. We emphasize how this applies to both elite and subordinate types of techno-labor. It includes high-status jobs like the entrepreneurs and evangelists who market and distribute technical products for firms and nations, software coders who are bound by corporate non-compete contracts, techno-venture firms that are scrutinized for underpaying employees, high-tech developers that rely on immigrant labor and com-merce contracts, techno-venture firms that are scrutinized for underpaying employees, high-tech developers that rely on immigrant labor and com-merce contracts, and the feminization and coloniality of work that are also highly class related. The goal of this track is to develop a more comprehensive theoretical analysis of the affective economy, and to engage explicitly with the theoretical work of others who have focused on this topic.

Participants:
Emergent Society-Technology-Formations in Affective Capitalism Doris Allhutter, Austrian Academy of Sciences; Brigitte Bargatz, University of Vienna

The significance of work practices that are organized and shaped by digital infrastructures is currently increasing. Recent transformations in knowledge work, industrial production and the procurement of services also entail newly emerging forms of a transnational division of labor. In this regard, they strongly point to the ongoing reconfiguration of global cognitive capitalism. Based on examples from the above-mentioned domains of labor, we argue for a renewed understanding of capitalism that includes materiality, affect and emotions as crucial forms of (self-)governing. We suggest that this will allow us to describe and analyze emergent capitalist society-technology-formations more adequately than other contemporary concepts of capitalism. Most debates on cognitive capitalism, immaterial labor, communicative capitalism or post-capitalism ignore at least two aspects: Firstly, they mainly neglect the field of social reproduction and care work and thus leave out important insights for theorizing immaterial and affective labor. Secondly, they ignore the embodied relation between humans and machines and thus the affective grip that cognitive capitalism has on people (but also on institutions). To address these conceptual and analytical shortcomings, we include three important theoretical strands: we discuss how affect theory, feminist postcolonial scholarship, and new materialism can contribute to conceptualizing a notion of “affective capitalism” that includes the affective and embodied involvement of humans in society-technology-relations. Doing so, we point out (at least) three important characteristics of “affective capitalism”: (1) the co-emergence of socio-technical and economic practices; (2) the commodification of affective investments and promises; and (2) the feminization and coloniality of work that are also highly class related.

Trusted Strangers: Constructing Crowds of Careworkers in the “On-Demand” Economy Julia Ticona, Data & Society; Alexandra Mateescu, Data & Society Research Institute

Scholars of technology and digital labor (Poster 2011; Irani 2013; Terranova 2000) have focused largely on information service industries. However work in other parts of the economy is becoming increasingly intertwined with digital technologies. On-demand platforms have become central to constructing and narrating care-workers in the “gig” economy as a crowd of trustworthy strangers readily available to clients because platforms such as Care.com, UrbanSitter, Swifo, and Handy position themselves as intermediaries rather than as employers. These “gig” economy companies have adopted much of the language and promises of their digital crowd labor predecessors, such as Mechanical Turk (Irani 2015). However, the intimate work of caring and cleaning up after children, the elderly, and animals provides a case to investigate the transformation of this rhetoric across different industries. Through a critical analysis of marketing and recruitment materials, public statements, and other company-produced discourse, this paper examines the ways companies communicate to potential clients and construct their workforce. Building on scholarship on implicit and explicit gendered inequalities that structure narratives of digital labor (Arcy 2016; Banet-Weiser 2011; Duffy 2015; Jarrett 2014), we find that, through corporate communications, as well as through their processes for recruiting and screening potential workers, these care-work companies construct themselves as trusted intermediaries in this market. Specifically, they create anxiety and fear around informal means of finding careworkers, and position their formalized services as a solution to this emotional problem. This narrative reinforce clients’ pre-existing biases about service workers and may also discriminate against workers from marginalized backgrounds.


With recent and ongoing debates about the desire to increase the minimum wage to fifteen dollars, restaurant chains have introduced kiosk machines. The reasoning, as former McDonald’s CEO Ed Rensi explains, is that rising labor costs are forcing chains to cut entry-level jobs and to replace workers with machines. Panera Bread and Wendy’s have also joined the trend, employing self-serve machines in their eating establishments. Meanwhile in news and social media, we see the humane pleas of why the proposed increased wage is important. One of the more commonly cited reasons to consider is that wages should be calculated to offset living costs. This labor “right” conjures up a contentious perspective from restaurateurs or business owners, for they are largely responsible for the well-being of their employees while actively trying to increase profit margins. This new trend, the visibility of technology in restaurant chains, might offer different types of discourses from different types of community, but here I examine the response from business owners. In this paper, I present, through content analysis, how restaurateurs use a neoliberal rhetoric to encourage consumers to ultimately make their own choices, between lower wages and automation. In this clash between policy and technology, what do alternatives mean, and how do we, the public, decide which
forms of automation work for us and which forms do not? By reflecting on these discourses, we offer more effectively, and critically, map the connections between our priorities, aesthetic judgments, and our preferred forms of social order.

The Society of an Investment: Entrepreneurial Performance and Venture Valuation in the Age of AI

Francis Jervis, NYU

Most Silicon Valley startups now rely on one or more species of synthetic agents, from "chatbots" and autonomous social actors in virtual reality spaces, to more generic "machine learning" algorithms. Meanwhile, venture capitalists’ investment (e)valuation process tends to rely on deeply subjective and conventionally social heuristics rather than strict financial analysis, regardless of the startup’s underlying technological focus. This paper describes the evaluation of startup firms by VCs as part of the entrepreneurial financing process as a novel site at which non-human agency produces effects in the human economy. These effects are mediated by the entrepreneur’s performance (the “pitch”), particularly in the case of yet-undeveloped systems, and dependent on a unique orientation to risk (and, thus, futurity) on the part of VCs. VCs’ construction of AI-reliant startup firms as objects of value forces STS to confront the emergence of a direct interplay between capital and an increasingly populous and vocal society of "synthetic actors." Based on interviews with VCs and analysis of their extensive online discussions of investment strategy, this paper proposes that the startup firm should, echoing the terms of one investor, be understood as a “society” in which the labor of the founders is interwoven with the action of multiple algorithmic actors. This discussion extends constructions of human and non-human agency in both STS and the sociology of finance, and shows how the evaluative labor of VCs, and their construction of risk, differs substantially from that of traders in other financial markets.

Chair: Winifred Poster, Washington University, St. Louis
Discussant: Sreela Sarkar, Santa Clara University

157. Revisiting the Gap between Conventional Science and Forensic "Science" in Legal Contexts

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Clarendon

There have been numerous engagements of legal scholars with STS in past 4S meetings. This panel will, in that spirit, address the frequently acknowledged "gap" between conventional scientific disciplines and the forensic "sciences," many of which have recently been discredited as unreliable (e.g., bite-mark analysis, or hair identification techniques). The first panelist will explore the tension between established and "courtroom science" with reference to the discipline of Statistics. The next panelist will acknowledge the recent failures of fire investigation experts—who testify in arson cases in criminal courts—to meet the standards of conventional science; from an historical perspective, an effort will be made to identify when courtroom expertise veered away from conventional science. The third panelist, continuing that focus on fire expertise, will put fire investigation into an STS framework by focusing on NFPA 921, the peer reviewed guide for systematic fire investigation; "myths" of fire investigation will be compared to the principles in that document. The final panelist will contextualize the first three papers by discussing the structural reasons for why courts tend to be oblivious to/uninterested in the "gap," including adversarial orientation in common law countries, party-presentation of expertise, limited resources, and models of an inactive judiciary. Focusing on the lack of legal acceptance of mainstream scientific work when presented by the defense in criminal proceedings, the final panelist will also attempt to refine some of the early STS approaches to law, including legal deconstruction and co-production, and their value in understanding expertise in criminal proceedings.

Participants:
Forensic Statistics: Paradigm or Vortex? Simon A Cole, Univ Of Ca-Irvine
Efforts to reform forensic science have gained significant momentum over the past decade. Many criticisms of forensic science emphasized the supposed "gap" between it and conventional scientific disciplines. Consequently, powerful discourses are arguing that certain academically respectable scientific disciplines could cure what ailed forensic science. One of these disciplines was statistics. A strong argument could be made that forensic science and law alike would benefit from conceptualizing all evidence as probabilistic in nature, something which arguably had been slow to occur. In addition, a particular subdiscipline, which I call "forensic statistics," made a strong claim to offer a universal conceptual solution—a paradigm, perhaps—that could apply to all forensic problems. Based on participant observation and published literature, this paper reports on the state of forensic statistics and its interventions into forensic practice and law. It suggests that reports of a forensic statistics paradigm may have been exaggerated. Has forensic statistics succeeded at penetrating both forensic practice and law? Is forensic statistics descending into arcane internal debates at the expense of offering workable solutions to its potential consumers? The paper engages the question of what happens when a respected scientific discipline seeks to connect to forensic science. As such, it will contribute to the robust SSS literature on forensic science, as well as to the literature on paradigms, the nature of scientific and quasi-scientific disciplines, and the relationship between science and practice and science and law.

Fire Investigation Expertise in Arson Trials: In Tension with Mainstream Science

David Caudill, Villanova University

There is already a strong critique of (and a growing literature on) forensic expert testimony offered by fire investigators, typically in criminal prosecutions for arson, as to the cause and origins of fires; numerous scholars have identified, however, the weaknesses in the purported scientific basis of fire investigation expertise in the 1970s and 1980s (much like the recently-publicized identification of weaknesses in forensic bite-mark and fingerprint identification expertise). This paper presents an historical analysis of the development of fire investigation expertise in order to identify where things went wrong and why (I focus on the institutional structures that led to questionable testimony, and I compare fire investigation to other types of failed forensic "science" that lack a scientific foundation but continue to be admitted by some judges). I survey the legal cases involving arson over the last 100 years as well as the growth and development of fire chemistry, engineering, and safety during that period. The paper’s contribution to STS lies primarily in the identification of social and institutional structures that ended up supporting a shaky field of forensic fire investigation through the cooperation of inactive judges, notwithstanding the gap between “legal” and “scientific” discipline, that is, between forensic expertise and the scientific discipline of, and publications concerning, fire investigation.

The Role of ‘Science’ in US Arson Trials: Are Old Myths being Replaced by New Ones?

Graham Spinardi, University Of Edinburgh

The last 25 years has seen a revolution in the way that fire investigators provide evidence in US arson trials. The previous approach – resting on what are now termed as ‘junk science’, ‘witchcraft’ and ‘fakelore’ – has been largely superseded by fire investigation practices based on the science-based guidelines set out by the US National Fire Protection Association in its 1992 Guide for Fire and Explosion Investigations (NFPA 921). It is widely believed that the use of NFPA 921 has reduced the numbers of miscarriages of justice in arson cases. This transition hinges on the way that expert knowledge is constructed and deployed in court, and the ways that expert knowledge claims are interrogated in the legal process. Evidence can now be ruled inadmissible if it fails the Daubert test, expert witnesses can be cross-examined as to their credibility, and knowledge claims can be assessed with regard to NFPA 921. However, general concerns about forensic science that have been raised by others (e.g. Cole and Edmond) remain, and there are specific features of fire investigation that are problematic. In particular, unlike most
Pathological Co-production and the Limits of Law, Forensic Science, Scientific Advice and STS

Caudill, Cole and Spinardi.

This paper will also reflect on the effectiveness of mainstream scientific interventions and what that might mean for STS actors – such as forensic experts, fire investigators act as both legal investigators and scientific experts, able to develop a case and testify to the facts of evidence at the same time. Daubert and NFPA 921 may have helped get rid of earlier fire investigation myths, but there is a risk, as Lentini argues, that the old myths ‘have been replaced with new ones.’

Pathological Co-production and the Limits of Law, Forensic Science, Scientific Advice and STS

The history of AIDS activism contains much of interest for those engaged in the intersection of science and justice. AIDS activists challenged the boundary between scientific inside and outside, insisting that they could work both outside - protesting and inside - as patient-experts - at the same time, with activists moving into scientific institutions that once excluded patients. The FDA is a leading example – AIDS activists fundamentally changed the agency, rendering it more responsive to patients and creating entirely new accelerated pathways for the approval of drugs. In time, however, many also became defenders of the agency, coming to realize that drugs without evidence could not help them. Today, however, the banner of AIDS activists at the FDA has been taken up by institutions like the Goldwater Institute, which supports “right to try laws” – that are sometimes called “Dallas Buyers Club Laws” — that draw on the history of AIDS to attack an agency in the interests of a libertarian or free marketeering vision of health. I’ll discuss the current attacks on the FDA, what they share - at times uncomfortably - with the history of AIDS activism - and describe a series of projects I’m working on at Yale (in partnership with several School of Medicine Professors, and a School of Public Health professor who was one of the AIDS activists taking on the FDA), to mediate the threats that a new deregulatory wave threatening the FDA poses to science and to health. One of the key questions for that work is the role that patient groups have, and will, play in the future of pharmaceutical and regulatory science.

Decolonial Environmental Justice and Chemical Exposures

Michelle Murphy, University Of Toronto

This paper is inspired by the work of Frantz Fanon and Indigenous Reproductive Justice in order create other ways of apprehending, describing, and monitoring chemical exposures. It explores the decolonial tactic of “introducing invention into existence” (Fanon) as a way seize back phenoma from capitalist, corporate, colonial, military, and patriarchal modes of assembling the world. Starting from the understanding that violence on the land is also violence on our bodies, this paper explores how we might make legible the extensive relations of chemical violence, and how such a revision has implications for not only for the ontological politics of industrial chemicals, but also how we understand the condition and units of life and the frameworks of molecular oriented biomedical fields like epigenetics, as well as how to understand the relationality of scale and time. Importantly for this panel, this attempt to introduce invention into existence of chemical exposures also has implications for how we resist the long history of gaslighting practices that have constituted our understanding of chemical violence, practices which are now at the forefront of the US federal state administration.

Saving Environmental Data and Knowledge from “Post-truth” Politics

Lindsey Dillon, UC Santa Cruz

The Environmental Data and Governance Initiative (EDGI) formed in the weeks after Trump was elected to respond to the anticipated deregulation of environmental policy, and to protect public access to environmental data. EDGI co-organized Data Rescue events around the country and began monitoring the federal environmental websites for textual changes (such as the disappearing of terms like “climate change” and other rhetorical shifts). Through these and other projects, EDGI demonstrates the potentiality of academic collaborations to respond quickly and effectively to the present moment. It also reveals the value of feminist science studies in thinking through the politics of facts and objectivity in a moment when environmental and climate change policy is at risk.

Racialized Genomics: Science and Justice in a Post-Race, Post-Truth World

James Doucet-Battle, University of California, Santa Cruz

This paper examines the possibilities for justice in the post-race, and post-truth (or “all-facts” moments). Through the lens of recent genomic research, I am interested in how race as an etic category links with genomic declarations of biological race in...
reconfiguring older discourses of difference. In particular, I explore the tensions between the last decade, race, specifically African (American) life, has been discursively minimized in the sociopolitical sphere, yet increasingly desired in genomic research. Moving beyond concerns about mere inclusion, I want to understand how the precarity of African-descent life and claims to justice run counter to genomic research desires to collect the diverse, heterozygous constellation of sub-Saharan DNA. I offer an invitation to think through the implications of imputing “truth” into race as a methodological “fact” and the inverse consequences for achieving racial justice in the current sociopolitical moment that struggles to accept the sociopolitical construction of race itself.

Chair: Katherine Weatherford Darling, UC Santa Cruz
Discussants: Jenny Reardon, UC Santa Cruz, Ruth Miller, MCTS TU München, Rebecca Herzig

159. Sense and Sensibility: Science and Religion in a Secular Age
Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Dalton

STS scholars have demonstrated the persistence of religious beliefs and values in shaping sense and sensibility, even in a supposedly secular age. In this panel, we investigate ways of knowing, doing, and being that complicate narratives of strictly secular science and technology in the twentieth century. We are interested in exploring “alternative modernities” and conceptions of rationality that unsettle the dichotomy between science and religion. In practice, the borders between the two are contested and ever-shifting, as actors stake out diverse political and ethical positions. We invite papers that seek to understand the myriad ways and means by which claims to reason and truth are articulated and adjudicated. We draw inspiration from historians of science and STS scholars who have considered such alternative modernities and conceptions of rationality: Karen Barad’s Meeting the Universe Halfway, Carol Cohn’s “Sex and Death in the Rational World of Defense Intellectuals,” Hugh Gusterson’s Nuclear Rites, Deidre McCloskey’s The Rhetoric of Economics, Matthew Stanley’s Practical Mystic, John Tresch’s “Cosmologies Materialized: History of Science and History of Ideas,” and, shifting from Western culture, Dilip Parameshwar Gaonkar’s edited volume, Alternative Modernities. Perspectives from the history of science and technology, STS, and beyond are welcome.

Participants:

Common Ways, Different Goals: Situated East-Asian and Scientific Conceptualizations of Mindfulness Meditation
Zsofia Samodai, Institute of Science, Technology, and Society, National Yang-Ming University

If sensibility in the ability to respond, then sensibility in mindfulness meditation practice is the ability to unlearn to respond. Affected by the teachings, the body learns to be aware and not to be affected. Modern mindfulness based interventions deployed in the framework of CAM (complementary and alternative medicine) utilize and decontextualize Asian contemplative practices of Buddhist origin to offer a secularized coping mechanism for both diseases and anxieties of a stressful life. The present study explores the interaction of traveling theories on the Global North-Global East axis and situated local knowledge. Ethnographic analysis and secondary data are used to explore the complexities of mindfulness practices in the Taiwanese context as constituting an alternative modernity. Scientific literature on mindfulness often represents the conceptual changes entailed in becoming a scientific intervention as an “evolution” from Buddhist traditions to modern Western techniques. However, in Taiwan different actors from religious and scientific backgrounds coexist in a knowledge space defined by both traveling Euro-American and international scientific knowledge as well as cultural influences of local contemplative traditions of bodily cultivation. Preconceived categories of traditional and modern are therefore rendered questionable. While the aim of Global North and Global East practices are to gain sensibility through meditation, they both entail distinct theoretical and bodily conceptualizations. Therefore, gaining insight into how practitioners of an East-Asian society make sense of the Western reinvention of techniques they already possess cultural understanding about is crucial to better understand the Global North and Global East.

Omri Tubi, Northwestern University

When British forces marched into Palestine at the end of 1917, they found a territory ravaged by disease, malaria amongst the most prevalent. As they initiated antimalarial operations, the British administration in Palestine introduced the Antimalarial Ordinance, which relegated the responsibility for preventing mosquito breeding to the inhabitants and made their participation in the operations mandatory. The Malaria Research Unit (MRU), a Zionist body that was maintained by the American Zionist Joint Distribution Committee and was a part of the British administration's department of health (DOH), followed similar logic and even formed regional antimalarial organizations. Both the MRU and the DOH referred to their actions as self-help, self-support or self-care. Analyzing archival materials, I examine the importance of antimalarial operations to Jewish state formation in Palestine and make a contribution to studies of the state in STS. I show how the self-help discourse and practices operated as a population mobilization mechanism. Additionally, I focus on the case study of Hefer Valley to show how these practices fulfilled an important role in the establishment of a local governance institution. I argue that while these practices contributed to territorialization and institution-building in Palestine, they stem from Protestant-Puritan religious ideas that "migrated" to Palestine with American Zionists on the one hand and British colonialists on the other. Thus, I add to the literature on the state transnational and religious components.

The Divine Madness of Science: Reading Benjamin Lee Whorf’s Theosophical Anthropology
Matthew Clay Watson, Mount Holyoke College

The twentieth-century anthropological linguist Benjamin Lee Whorf is well-known for helping to refine linguistic relativity, the argument that grammars constrain speakers’ perceptions and worldviews. This paper argues that Whorf’s relativity constructed anthropology as a discourse that could reconcile the physical sciences with forms of religious thought. Initially trained in chemical engineering as a student at MIT, Whorf’s linguistic and anthropological research was always a labor of love. But this love was not ethically or epistemologically innocent. His initial motive for linguistic study was theological. In early letters to theologians, Whorf identified his intellectual objective as the reconciliation of science and Christianity. Whorf taught himself Hebrew in order to read the Old Testament in the original with the goal of demonstrating, in John Locke’s terms, “the reasonableness of Christianity.” In correspondence, he maintained that this work “opened a new scientific frontier.” His innovation amounted to a “chemistry of speech” that distilled Hebrew’s core “psycholinguistic” ideas. I suggest that Whorf’s quasi-scientific language ideology persisted through multiple stages of research and facilitated intensifying engagement with the occult science of Theosophy. By the end of Whorf’s career, his Methodist religiosity melted into a Theosophical anthropology that freely exchanged concepts drawn from Hinduism, philosophy, linguistics, and physical science. In his final major essay, Whorf asserted that “Science, the quest for truth, is a sort of divine madness like love.” I read this tendency in Whorf’s thought as a provocative anticipation of contemporary anthropology and STS scholars’ efforts to critically reengage secularism, religion, spirit, and science.

Reading Meteorology through Different Temporal Senses
Su Hu, University of Edinburgh

Agricultural insurance was implemented in eastern Tibetan villages in 2014. Traditional practices of knowing meteorological
disasters are incompatible with the insurance scheme. The paper aims to situate my field trip for a claimed wind disaster in a context about different knowledges of weather. Understandings of meteorology operate on different temporal senses. The modern meteorology de-historicizes the wind disaster. Time diminishes through mathematization, the disaster is read not as a historical event, but from this reading, as a numerical point on the scale of wind strength and a point on the curve of probability. In this vein, the future, the present and the past collapsed into simultaneity in the modern reading of meteorological disasters. On the other hand, Tibetan tradition of knowing weather situates weather in historical events, invoking the activities of local deities and local communities (Huber and Pedersen, 1997). It is the collective memory and (fabricated) histories that foreground the wind disaster, time flows within the constitution of legitimate winds. The interplay of these two incommensurable temporalities produced knowledge hybrids. I reflect on the employment of traditional weather-controllers in village administrative records, and on the illogicality of a signed geological disaster contract between villagers and a local hydropower research panel. Given their combination of incommensurable claims, they are illogical from an outsider’s view, nonetheless, they can be read as hybrid products due to a postcolonial moment in science (Verran, 2001).

Rural Simulacra: An STS Inquiry into an Urban Park

Jonathan Strout, University of Florida

Urban parks are rooted in the romantic notions of the Progressive sentiment in the U.S. in the 19th century, where Emerson, Thoreau and landscape architect Frederick Law Olmsted among others, viewed the rural landscape was the source of the soul’s replenishment. Olmsted claimed we need relief from the human-made surroundings of civilized life. Parks are imbued with these specific notions about nature. While often considered areas of pristine or untouched nature within the city, urban parks are just as much ‘built’ as the concrete, steel and glass buildings that surround them. We experience the environment through the ongoing interchange of our bodies and the entities that surround it. Our ecological selves are created through and in our exchange with the human and non-human world. Interrogating the ecological self, we open the multiple imaginaries of human-nature relationships, and discover a human who interacts with and makes sense of a vast and diverse non-human world. As such, an STS inquiry into an urban park considers the materiality of the park, how embodiment and perception are integral to our experience of the natural world, and how features of the physical environment afford certain possibilities, which vary according to the person, time and place. A tree blowing in the wind, birds swimming in a pond, or a person sitting on a park bench are not merely isolated subjective objects or occurrences, they are intersubjective phenomena, experienced by a multiplicity of sensing subjects. In capturing cultural narratives, popular understandings and personal experiences of nature, arts-based research methods including photography, journalism and drawing can help inform our understanding of how people encounter, see, and understand the environment. In this paper, I present my use of these research methods, considering the multisensoriality of ‘being-in-nature’ to uncover a deeper level of knowing with respect to how people experience urban green spaces.

Chair: Renee Blackburn, MIT
How are STS concepts and “thought styles” being relayed to emergency medical technicians, radiation health specialists, aerospace engineers, and other expert communities? How has STS been brought into K-12 and community education? Extending Science and Technology Studies (STS) research and contextualized transdisciplinary data shows that, especially when taking part in workshop group activities. This forces the ethnographer to be highly reflexive about their participation in a hands-on workshop setting.

Making and Doing Inclusive Conferences Victoria Neumann, MCTS, Technical University of Munich; Angela Prendl, University of Vienna; Nikolaus Pöchhacker, MCTS, Technical University of Munich

Conferences and similar events constitute an integral part of academia, art, and activism to create spaces to work, share and exchange ideas. But what are the theoretical and practical implications and limitations of organizing conferences? What if one aims at making them as inclusive as possible and facilitate exchange across hierarchical, disciplinary and other boundaries? Drawing from our own experiences with organizing the transdisciplinary Changing Worlds conferences in 2014 and 2015 (www.changingworlds.univie.ac.at), we aim to reflect some choices and decisions that were made when planning and organizing Changing Worlds. Organizing a diverse conference includes many topics, and in this case also a steep learning curve from building a conference from scratch to getting more inclusive for the second installment. While we do not claim to have solved every problem we came across, we want to share our experiences and the way how our backgrounds influenced and enabled us to pay attention to issues such as presentation formats, accessibility (physically and culturally), various actors’ conflicting needs, financial challenges, language use, and various diversity topics. This presentation aims at pointing out the approaches to solve them.

Scientific meetings are a sociological paradox – they are frequently attended and seldom discussed. Considering this premise, the authors propose a reflexive approach of taking the 4S Annual Meeting as a case study. The research is based on mixed methods: a) analysis of a historical database of previous 4S meetings, considering attending authors, their institutional affiliation, origin, papers themes and keywords; b) documentary analysis of the programs of previous meetings. We propose the following hypothesis: the 4S meetings were intended as an alternative to traditional, “mertonian” models of scientific communities but its practices often emulate the Matthew effect, especially when considering the geographic distribution of meetings and prizes. This analysis supports a program for “experimental reflexivity”, i.e., the use of STS concepts and methods to understand the STS community itself.

Chairs: Baki Cakici, Goldsmiths, University of London
Nick Seaver, Tufts University
Discussant: Alison Cool, University of Colorado Boulder

161. STS in Practice

161.1. Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Fairfax A

This presentation will characterize the roles that technical professionals—particularly physicians—recurrently play in both routine and disaster contexts, pointing to a need to develop and cultivate supporting educational programs. Drawing on examples from both routine clinical practice and from moments of disaster—primary care physicians working with chronically ill patients in the US and physicians responding to the Fukushima nuclear disaster—I will illustrate the potential for STS thought styles to be infused in technical education and put to work in the field. Through mapping the different scales at which health professionals must work, from the micro-scale of practice to the macro-scale of organization, the STS lens provides a critical perspective to the contexts and practices of STS professions in both routine and disaster settings. This presentation will also describe two innovative educational initiatives: one in Japan that emerged in the wake of the Fukushima disaster, integrating historical and social perspectives into technical education to cultivate what can be termed “disaster literacy,” and the other at Rensselaer, a social science course and supporting web platform for undergraduate Emergency Medical Technicians (EMTs). The study presented
will advance social theoretical knowledge of disaster, and of the thought styles and practices of health professionals.

**STS Interventions in Engineering Education: The University of Virginia's Science, Technology, and Society Program**

This paper investigates the Science, Technology, and Society (STS) Program at the University of Virginia as a case study of STS interventions in undergraduate engineering education in the United States. Engineering education has long been an area of interest for those in and around STS; however, few studies have engaged with STS interventions in engineering education as a research topic in itself. The central argument of this paper is that “STS in practice”—as the panel title puts it—constitutes a worthy research topic insofar as STS interventions are one of the constituent forces operative in the sociotechnical world that we as a scholarly field seek to understand and at times change. To make this argument, I draw from interviews with eight STS faculty and forty-six engineering students in their final semester of study in order to (1) describe the underlying hopes of UVA faculty teaching STS to engineering students and (2) explore how UVA engineering students make use of their STS education in the formation of their professional engineering identities. What do the STS faculty hope to accomplish by teaching STS to engineering students, and in what ways do engineering students incorporate their STS education into their proto-professional engineering identities? In answering the first part of my question, I use an imaginaries framework to investigate the normative visions of the (non-)ideal engineer that motivate UVA’s STS faculty. Through their teaching, the STS faculty imagine an “STS-informed” engineer who is empowered to choose what they work on and makes conscious decisions throughout their work by questioning the purposes and implications of their technological endeavors. The STS faculty also imagine the ideal STS-informed engineer in contradistinction to an engineer who is trapped in a corporate somnambulism, unquestioningly completing technical tasks in exchange for a comfortable paycheck. In answering the second part of my question, I use Downey and Lucena’s approach to engineering cultures and professional formation as configurations of “dominant images” that engineers must respond to (read: incorporate, ignore, modulate, etc.) as they make sense of their engineering identities. UVA engineering students distance themselves from a boosterish and narrow pursuit of technology, instead favoring an empowered and reflective mode of engineering that speaks up against ethically suspect issues (especially pertaining to public safety) and questions the purposes and implications of their work—an aspiration similar to that of the STS faculty. By comparing the continuities and discontinuities between what the faculty imagine through their teaching and how the students respond to their STS education, I highlight the complex efficacy of “STS in practice” at UVA. Insofar as STS interventions are efficacious, they also demand our scholarly attention.

**Impact of Quantified Tests – Case of Career Counselling in India**

Chen, University of Virginia

Career counselors conduct aptitude tests, personality assessments, and use their knowledge of the labor market to match students with ‘ideal’ career paths. In this way counselors supply important information about career opportunities so that students make informed choices about their future. Such interventions are often conducted at schools for students aged 14-18. In this paper I draw on case study interviews of two schools in India in order to analyze: what is the impact of career counselling on decisions made by students? How does career counselling in its quantified form pre-figure the labor market? And how can we use STS tools to understand this process? Career counselors are in an intermediary position between the labor market demand and supply. Given their special access to information, counselors claim that such interventions at school lead to greater social mobility and better outcomes for students. However, I show contrary to their own claims of creating social mobility, career counsellors reproduce social inequality and reinforce career trajectories that are dependent on student’s class, gender and kinship relations. Even though career counselor’s claims of creating innovative career paths does not entirely hold true, they impact student’s lives because this intervention makes students’ decisions appear specifically as informed choices based on evidentiary tests that claim to “reveal” student’s personalities in standardized numerical form. The use of this quantification apparatus and its roots in the epistemology of quantification will be at the core of my arguments.

**Relaying Design Styles: Practicing Communication in the Environmental Sciences and STS**

Brandon Costelloe-Kuehn, RPI

Thoughtful design of what I call environmental media systems promises to increase our capacity to understand and respond to scientifically and politically complex sustainability challenges. This paper will examine the “design styles” of a range of environmental media systems. It will assess ratios behind different functionalities, how users are moved through a system, and the production of what literary theorist Shoshana Felman calls a “reading effect.” Reading effects can reconstitute the object of knowledge, the subjectivities of the systems’ producers and users and the forms of collectivity that mediate collaborative possibilities. This paper will demonstrate how analytic techniques developed to understand texts-as-data can be used to understand digital information systems, drawing out latent ideologies and epistemologies. Ethnography can be used to make design styles explicit, eliciting articulations of tacit assumptions that constrain and enable these projects. The environmental media systems analyzed in this paper are designed by the environmental scientists at the U.S. Environmental Protection Agency and by social science and humanities researchers situated within science and technology studies. Based on ethnographic interviews with its producers, this paper examines the EPA’s Environatlas, designed to help planners, economists and citizens visualize and evaluate ecosystem services provided by natural resources like street trees. Drawing on six years of participant-observation, this paper also analyzes the Platform for Experimental and Collaborative Ethnography (PECE). PECE was built to support The Asthma Files, an experimental ethnographic research project that examines different styles of environmental health research and governance in various urban and national contexts. Drawing these projects together, this paper argues that there is great potential to build on ethnographic insights from social studies of science communication as we produce new contexts for communication and collaboration in the empirical humanities. This paper concludes by evaluating the limits (commonly discussed) and the values (which receive less attention) to “preaching to the choir” within the environmental sciences and STS. The paper posits STS-in-practice approaches as one mode of engaging with these edges and potentials, exploring specific principles from STS that could inform communication within the environmental sciences and, in turn, design styles from the scientific case studies that could inform STS communication and collaboration.

Chair: Alli Morgan, RPI

**162. Sociotechnical Approaches to Privacy and Data Protection I**

Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Fairfax B

A January, 2016, survey found more Americans are worried about data privacy than losing their main source of income. To date, Google has removed over 663,280 URLs from personal search results in response to users exercising their right to be forgotten. And since July, 2016, 120 users exercising their right to be forgotten. And since July, 2016, 120 journalists have been arrested in Turkey for content expressed online. Privacy and data protection have become incredibly complex, relevant topics. Approaches to privacy and data protection are often either legal (with an emphasis on the roles and responsibilities of the individual rational subject and formal governance tools of the state) or technical (with a focus
Participants:

The Privacy Paradox: How Market Privacy Facilitates Government Surveillance Karina Rider, Queen’s University Studies of private sector data protection schemes and their relationship to government surveillance techniques have rarely taken into account market regulation policy. In this paper, I investigate how the type of surveillance conducted by U.S. federal law enforcement and intelligence agencies has historically been shaped by policymakers’ considerations of market approaches to economic regulation. Specifically, through an analysis of Congressional debates over encryption policy from 1993-2016, I find that a significant factor in surveillance policymaking was whether legislators, corporate firms, and civil liberties advocates interpreted proposals as engendering (1) top-down government control over markets and technological innovation, or (2) deregulation and free-market activity. In the early 1990s, law enforcement pushed for a top-down regulatory approach in which the federal government would produce key recovery technologies to ensure surveillance capability. These proposals were defeated by policymakers, market actors, and civil liberties organizations who instead advocated for deregulated encryption markets. These market-oriented proposals argued that firms needed access to deregulated encryption markets in order to secure users from privacy invasions by criminals, identity thieves, and foreign government hackers. Policymakers eventually backed the market-oriented proposals, which I argue paved the way for the behind-the-scenes corporate-government surveillance cooperation we see today. I conclude that as a result of the interconnectedness of market regulatory policy and sociotechnical approaches to privacy and surveillance, the expansion of privacy for consumers has historically been used to achieve the contraction of privacy from law enforcement. This raises questions about possible unintended consequences of privacy-based counter-surveillance advocacy.

The Double-Edged Affordance of the Time-Tax: Rethinking the Design and Generativity of Data Privacy Controls Elizabeth Anne Watkins, Columbia University Social media platforms make it easy to share and tough to conceal. Built on surveillance economics, they’re driven to harvest user data. When users want to share their data, opening their digital lives to collection, then the goals of the platform and the user are aligned. In the language of UX/UI designers, this is called a “success.” When a user doesn’t want to share, however, and begins to set her online behavior to be private, then her goals diverge from those of the platform and its designers. The user’s success in concealing her data translates as the designers’ failure to collect it. Definitions of “success” and “failure” become entangled. I propose that this entanglement is generative and produce a new type of design work. Designers must deliberately, in the lens of affordance theory, de-afford users from securing their data. At the same time, they must strive to afford satisfaction with the overall experience. This creates what I call a “double-edge affordance,” a unique artifact produced by platforms of passive surveillance populated by diverse communities of users. In this paper, by combining participant observation of users and interviews with designers, I find that one such “double-edge affordance” takes the form of a “time tax.” Users decide to concede their data to the platform when it is discouraged, not through a monetary fee (by which we normatively conceptualize questions of value), but rather, through what I term a “time-tax,” where users must “spend their time” to secure their data. I show that this “time tax” decouples users’ personal valuation of their data from the monetary value expressed in corporate data markets, interpolating an imprecise valuation heuristic for the information commodities users produce. This de-affortance, further, prevents users from building reliable mental models of the movement of data in digital systems, which could be deployed to protect personal information.

“Cypherpunks Write Code”: Privacy, Crypto-Anarchy and the Interpretative Flexibility of Encryption Sarah Myers West, Annenberg School for Communication & Journalism, University of Southern California This paper examines how encryption became associated with free expression and privacy within the digital rights community, a departure from the longstanding tradition of encryption as a mechanism for the advancement of military intelligence. Using the framework of interpretative flexibility (Pinch & Bijker 1987, Kline & Pinch, 1996), I examine discourse among a group of technologists developing encryption tools in order to consider how these social and political meanings solidified. Drawing on interviews from the first year of the Cypherpunk Archive, the listserv the group used to communicate, I examine the concepts of stabilization and closure: how certain ideas about alternative values of encryption were proposed, debated, and closed off within the community. As I discover, the early cypherpunks hotly debated the role of encryption in the newly networked global society, and were divided over how it should properly be used and promoted. The cypherpunks were remarkably cognizant of the idea that “artifacts have politics” (Winner, 1980). They had a sense that the architecture of the technologies themselves would lead to certain constructions of power and authority; indeed many of them believed they were participating in a project that would bring forth major social and political change. Thus, in my analysis I attend particularly to the nuances of how the cypherpunks thought about encryption’s potential in both law and code, and conceptualized an alternative sociotechnical imaginary for the Internet that places user privacy rather than connectivity at its center. I conclude by examining how these debates prefigure contemporary conflicts among policymakers and the technology industry over encryption.

Figuring Out “Reasonable Expectations” of Data Protection and Privacy as Sociotechnical Phenomena Martina Klausner, Humboldt-Universität zu Berlin Combining insights from SLSI, legal anthropology and legal studies this paper looks at the expectations of privacy and data protection of future users of telerehabilitation technologies. The paper employs the concepts of “reasonable expectations” and “privacy by design” in the recently adopted EU General Data Protection Regulation (GDPR) and comparable legal regulations to discuss the significance of patient expectations for the development of privacy and data protection-friendly rehabilitation technologies. Empirical basis of the paper is an ethnographic study conducted within the framework of an interdisciplinary research project dedicated to the development of intelligent orthoses for the treatment of scoliosis and monitoring of children and teenagers, focusing on the actual expectations of a group of young patients and their practices of privacy protection and data sharing. Yet, addressing privacy and data protection as sociotechnical phenomena also problematizes the notion of “reasonable expectations” as a seemingly clear objective. As my findings show expectations of privacy and data protection are fundamentally based on former experiences in specific settings and infrastructures, and therefore need to be addressed as situated phenomena. The critical question then is how to consider expectations regarding new technologies, especially when those new systems bring in new actors and
163. STS and the Design of Dying, Death and the Afterlife I

Traditional (Closed) Panel

9:00 to 10:30 am
Sheraton Boston: Floor 3 - Gardner A

It has been argued that many of us live in a culture where the dead and dying are increasingly sequestered from the living and enveloped in (bio)medical discourse and practices. Yet, social media, novels and films have made death present in new ways through their digital afterlife, imaging, and legacies. This panel explores STS-related work on these shifting and complex configurations of presencing and absencing dying, death and the afterlife through an empirical and analytical attention to the various historical and cultural spaces that are envisioned, designed and built for the dying and the dead, what these spaces (in)sensitize to, and how they are governed and done. Furthermore, we focus on affective methodological reflections about the study of dying and death as a process of care. We invite a broad scope of contributions, including (but not limited to) the following themes: 1. Designing death-scapes: the design of (urban) spaces to accommodate the dying, the dead and their afterlives, as well as the materialities of organizing dying, death, and life beyond death. What new narratives are formed and stem from places of death as arenas for doing, imagining and re-making dying and death? 2. Unpacking the normal and variations of the ‘good’: what goes into ‘good’ ways to die and norms of dealing with the dead and their afterlives? 3. Intersections/transitional spaces and boundary work: when does ‘dying’ start, when do lives end, and how are boundaries drawn and done?

Participants:
A Place for Mortality: In-patient Hospice Architecture and its Role in a Dignified Death

Annie Bellamy, Welsh School of Architecture

A Place for Mortality: A comparative study investigating the phenomena of what it is to dwell within in-patient hospice environments and the role of the architecture of hospices in a dignified death is submitted in response to the call for research on the topic of design of death and dying; with particular focus on how the built environment can influence a positive experience of dying. As the necessity of palliative care services grows in England so has the demand on the bedrooms in dedicated in-patient hospices. As many providers look to rejuvenate their outdated facilities - a multi-sensory and tactile approach will form rich comforting environments for those at the end of their life. Frameworks of medical and pastoral care can be enhanced whilst avoiding institutional environments. The study takes the form of three distinct qualitative case studies reveal subtleties of the subjective nature of the topic; moving through local, regional and national scales developing narratives exploring the successes and failures to promote personal dignity through the built environment. Beginning with an auto-ethnographic account of the authors time in a local hospice where the author’s Mother passed away; to primary data gathered through interviews with users from a regional county hospice before concluding with an analysis of a new build hospice of national acclaim. Dwelling and the notion of ‘home’ are subjective realities experienced differently by all - however the feeling of dignity within an environment relies on a spatial hierarchy placing the dying person above all else. This study highlights a scale of architectural strategies, from urban design through to bespoke furniture, that mediates the details of domestic and hospital architecture by encouraging interactions of the dying person beyond the boundaries of their bedroom, both socially and sensorially to promote a good life right to the very end; that maintains a connection between the dying person and their life and the external world. The study draws attention to how rationalising the medical environment and infrastructure offers a greater sense of trust to the dying person at the end of their life that is markedly more personable than the environments of an acute hospital may be able to offer.

Designing Spaces for Death and the Afterlife

Dara Ivanova, Institute of Health Policy and Management (Erasmus University)

“In the event of my death, I, Leslie Abigail Cash, wish to be cremated. My funeral shall be a celebration (…) my ashes shall be taken to a nondescript location (…) and promptly and unceremoniously flushed down the nearest toilet.”

Captain Fantastic (2016) Death is social, affective and disruptive, but also material, organizational and practical. Dying and death are always spatial; death happens somewhere, in (death-appropriate) places. Different deathcare cultures do death differently, but the pressures of urbanization and overpopulation pose issues for policy makers, planners, designers, architects and death professionals around the world. As societies change, new principles must be agreed upon “to respond to the universal presence of dead bodies” (Laderman 2003: xv). I critically examine how the affective and the material come together in urban spaces of death by exploring deathcare spatially through the lens of architecture and design in the Netherlands. I analyze architectural submissions to design competitions for cemeteries, crematoriums and burial places and delineate the role that (new) technologies and design play in shaping deathcare and the afterlife. My focus is on how architects and professionals do death and how death’s spatiality define the process of dying, death and the afterlife. The paper is based on ethnographic work with architects, designers and death professionals and it represents a theoretical move to link scholarly work on death and space by employing ANT as “a set of sensibilities” (Mol 2010: 265). I engage with deathcare/afterlife design in an explorative way, searching for intersections of the material, affective and spiritual. The paper contributes a design view of death as an arena for imagining and doing death and after-death spatially.

How Modern Technology Shapes Death

Shengying Lu, Beijing Normal University

Modern technology refers to the scientific technology which is contrary to experiential technology. Nowadays, scientific technology is involved in our life and way of being. Every aspect of modern society is shaped by scientific technology, including death. For example, people die in hospital currently instead of at home. By analyzing the phenomena and elements related to death, and exploring how modern technology shapes death, a new critical way of understanding contemporary civilization is...
Science from the Eyes of Local Cultures

messages to be more attuned to local cultures and specific communities. Science communication professionals have called for science-related cultures make meaning of science? How do communities weigh science for such a goal to be met, however, research must first examine how concepts against their other priorities when making decisions on food causes, the health care system, the registration system of death, assembly line of funeral ceremony, even the role of mass media in the process of science edged out religion and customs as ideology about death. Death is an epiphany of modern civilization, so it will also enables us to understand the deep roots of other social problems at present in China.

Good Grief: Postmortem Technologies and 'Healthy' Grieving

Philip R Olson, Virginia Tech

This paper examines the social construction of grief in the context of technologically mediated postmortem care of the human corpse. While technology is not inherently at odds with or corruptive of the emotional needs and values of persons and societies, appeals to emotional health and well being act as familiar bases for evaluations of technological systems and the technification of various practices. Critics of the medicalization of childbirth and death, for instance, have argued that technological interventions into these processes can interfere with the experience and expression of “natural” and healthy emotions such as grief and the emotional bonding of mother and child. Extending the discussion to include postmortem care of the human corpse, I draw attention to historical and contemporary arguments for the grief-therapeutic benefits of specific postmortem technologies (including arterial embalming, cremation, and alkaline hydrolysis), as well as concerns about the emotional detriments of specific disposition technologies of the corpse. Focusing especially on the burgeoning, women-led, do-it-emotional detriments of specific disposition technologies of the corpse. Focusing especially on the burgeoning, women-led, do-it-

Science Majlis in Qatar

Anto Mohsin, Northwestern University

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Reflections on Science and Risk Communication in the Philippines: Informal Channels vs Scientific Rationality for Decision Making

Maria Inez Angela Zamora Ponce de Leon, Ateneo de Manila University

The Philippines is a hotbed for storm surges, typhoons, floods, and other weather-related disasters. Despite the many flood warnings released by the country's weather bureau every year, many people still lose their lives and properties because they refuse to evacuate. Local scholars point to a "deficit" in the public understanding of weather, but might there also be informal communication channels that mediate flood-related actions? I led a study that aimed to examine convergences and divergences in the conception of scientific weather knowledge in the communication chain of two Philippine cities. We interviewed a weather forecaster, risk reduction management officers, and local government personnel, and conducted focus group discussions with residents. We asked what people knew about floods, and what the goals of communication were. We found that while leaders and scientists saw decision making as rational and driven by science, residents evacuated based on non-science priorities, such as space availability in evacuation centers and whether their neighbors had already evacuated. These findings, along with the media coverage of disasters in the Philippines, have prompted theoretical reflections on the role of informal channels and scientific knowledge in decision making. How can these interpersonal channels be studied and understood? What kinds of communication programs can best suit such communities? How can a developing country government create policies without ignoring these interpersonal channels? These reflections contribute to STS scholarship as I propose new directions for research into audience attitudes toward science, and what these might mean for science communication.

Science Majlis in Qatar

Anto Mohsin, Northwestern University in Qatar; Aisha Al-Qadi, Northwestern University in Qatar; Jemina Legaspi, Northwestern University in Qatar; Sara Al-Ansari, Northwestern University in Qatar

Between April 2015 and November 2016, Qatar Environment and Energy Research Institute (QEERI), one of the country's state-sponsored three research institutes, held a monthly public forum called the Science Majlis. The hybrid phrase—a combination of an English and an Arabic word—is meant to attract the Qatari publics (professionals, students, scientists) to the informal gatherings to discuss scientific topics that are relevant for the country. The discussion questions mostly revolve around issues of energy and environment, especially about water resources and solar energy. But occasionally another topic such as astronomy was included. The discussions were conducted in English, but speakers of Arabic were given a chance to ask questions, to comment, and to respond in Arabic whenever they would like to. The forum welcomed participants of different age groups, educational backgrounds, professions, nationalities, and genders since one of its goals was to engage non-professional scientists to talk about QEERI-related issues. In fact, QEERI’s Science Majlis events were all held on the second floor of a café in downtown Doha on a Wednesday evening to make it accessible for the general public. In every event, a discussion leader, typically a QEERI scientist, started a discussion by giving a 10-minute talk on a topic before opening up the Majlis for a sustained discussion for about an hour. Everyone, including school-age children, could and did participate. Usually between 20 and 30 participants attended, although not everyone engaged in the discussion. A moderator strove to ensure that the discussions remain accessible by asking newly introduced terms be explained and balanced by avoiding that the conversation to be dominated by a specific group. Using qualitative data gathered from participant observations and interviews with some of the Majlis participants, this paper traces the origins of the Science Majlis and examines how some of the
A Good Doctor is Hard to Find: Assisted Injection Expertise Among Persons Who Inject Drugs Sarah Brothers, Yale University

This paper presents a detailed analysis of expertise in the practice of assisted injection among those who inject drugs. It is based on a series of ethnographic observations and interviews with injection drug users in San Francisco in 2015. In San Francisco, about 2.3% of the population inject illicit drugs. Over half of these persons practice assisted injection, in which one person injects another person. People receiving assistance are twice as likely to be injection drug users than to be infected with HepC and HIV, and at increased risk for many forms of violence. However, little is known about the practice. Research has focused primarily on women injected by men, arguing that they do so as a performance of symbolic subordination. Instead, this paper offers an alternative explanation for the assisted injection interaction. Experiential based expertise in this illicit field is difficult to attain, disseminate, and evaluate. Practitioners become experts by practicing on their own bodies and the bodies of others. And, since there are no certificates for the practitioner, recipients evaluate expertise either through affective information based on intimate ties, or through a medicalized discourse that establishes the injector as the skilled expert and the recipient as a passive patient. As one man said, “I’m good. I’m better than a doctor. If I can feel a vein- I can hit you.” This paper proposes criteria by which expertise may be established and evaluated in fields without bureaucratic regulation or codified medical norms.

Curing Pharmaceuticals: Healing and Relational Ontologies in Pharmaceutical Use in Tanzania Laura Meek, University of California, Davis

While Western biomedicine perceives pharmaceuticals as cures for disease, in Tanzania, such medicines are understood to be volatile and potentially malign substances- one among many unpredictable, fluctuating, and highly contemporary forces from outside, whose potentials are at once positive and negative. In my dissertation, based on over 30 months of ethnographic fieldwork in the Southern Highlands of Tanzania, I explore how pharmaceuticals are understood as ethnically ambivalent and argue that much of Tanzanian practice around their use is aimed at enabling these drugs to heal by placing them within relational ontologies in which they act outside the logics of biomedicine. I build on post-colonial Africanist science studies work which has shown how even the notions of “medical pluralism” and “hybridity” are insufficient to capture the ways in which healing regimes come into being and produce new entanglements (Stacey Langwick, Helen Tilley). I also draw from philosopher of science Isabelle Stengers’ notion of the “placebo” as the cure which cures for the ‘wrong reasons’, due to the biomedical assumption that pharmaceutical effectiveness can reside only in its chemical ingredients. Through an extended case study on the use of phenobarbital, I argue that while biomedicine perceives cures that cure ‘for the wrong reasons’ (ie- placebo effects) as insensible, much of everyday Tanzanian pharmaceutical practices attempt to resolve the insensibility of cures that do not heal. In such cases, pharmaceuticals are unable to heal until their potentials are activated by placing them into the ‘right relations’, thus remaking these drugs within relational ontologies.

Chair: Anto Mohsin, Northwestern University in Qatar

165. Historical (In)Sensibilities I: Historicizing STS Methods

Participants:

Continuity or Change: Modern Nursing Knowledge Formation in Taiwan Zey-Yann Lu, Zzyann Jane Lu

Historical appraisal of nursing may be characterized to be the progressive professionalization in Taiwan after WWII when international aids, such as UN and American Bureau for Medical Advancements in China (ABMAC), provided for nursing education. The emphases on scientific quality, modernity and biomedical advancement have been addressed in order to tackle with resurgent numerous infectious diseases such as cholera, malaria, diphtheria after WWII as compared to the period of Japanese occupation of Taiwan during 1895-1945. While modern biomedical oriented nursing disciplinary knowledge has been framed as cutting edge scientific advancement with cultural meaning, little is concerned about the temporal and spatial transitions of organizations and individual professionals on nurses and nursing practice in Taiwan. This paper explores how nursing identities shaped by the cultural tensions between nurses and their patients and among nurses with various preparation backgrounds during 1945-1975. Specifically, the influence of International organizations and consultants on Taiwanese nurses and nursing will be ascertained. The study of institutional and personal movement in the past facilitates the understanding of professional identity of present nursing. Archival records from ABMAC at the Columbia University, Rockefeller Archive Center as well as Taiwan Historica have been used. In addition, oral history from nurses who practiced during 1945-1975 has been collected. The postcolonial approach of this research enhances the analysis of gender and class discussion in nursing knowledge transformation.

The Dispute over Time in Late Imperial China: Interpreting Modernity from A STS Perspective Dian Zeng, Institute of Science, Technology and Society, Tsinghua University; Wei Hong, Tsinghua University

Through a symmetrical analysis of a scientific dispute over time during the Ming-Qing transition in late imperial China, we examine one probable origin of Chinese modern time and its significance to the modernity of China. A well known event of this dispute is the ‘calendar case’ that involved a Chinese traditional intellectual, Yang Guangxian, and a famous European Jesuit, Johann Adam Schall von Bell. The central issue they
debated was whether Chinese society should accept western calendar. After 10-year effort, the group of Jesuits finally won the debate. From then on, the western time which is regarded as modern has dominated the life of Chinese people. We suggest that the present is never independent of the past. The modernity of China, to some degree, is the outcome of the interactions of the traditional society with science and technology, in the ‘big context’ and the ‘small context’ of a special period in the Chinese history. Scientific dispute in this case has provided an opportunity to establish a new set of social orders while the establishment and the development of the new set of social orders strongly rely on the new system of knowledge. While this study shares some commonalities with the classic study of Leviathan and the Air-pump, our interpretations are situated in a distinctive set of inquiry framework and problem domain. Moreover, through the study of a scientific dispute located in China, we are also intended to promote a comprehensive understanding of STS in contemporary China.

Reconstructing Historical Regimes of Design and Production in Digital Fabrication Yana Boeva, York University Digital fabrication technologies and practices of making are considered to bring about an epistemological shift in our understanding of traditional, normative forms of production, expertise, and consumption. Moreover, they are hailed to reconfigure our understandings of categories like professional and amateur, work and leisure, or handwork and conceptual work. However, these forms and categories are themselves historical products. How does the history of those figure in the current practices of digital fabrication? Recent scholarship in the fields of STS, human-computer interaction, and design studies has focused on tracing its historical origins within the countercultures of computer hacking or the Arts and Crafts movement. However, as digital fabrication embraces future-oriented narratives of innovation that pertain to the above-mentioned categories, larger socio-historical perspectives beyond these two examples become neglected. A specific case is the context of establishing curricula and professionalization practices in design and engineering tied to wider understandings of expertise. On that account, this paper seeks to place historically this contemporary phenomenon within the moments that produced design as a professional practice by interweaving recurrent ideas of handwork and workshop. My inquiry focuses on the disparity between the Bauhaus school’s call for training in artisanal workshops with a position against specialization and the separation from handwork in industrial design. Drawing on this example, the paper concludes with a methodological discussion on why historicizing an ethnographical, materially-engaged example, the paper concludes with a methodological discussion on why historicizing an ethnographical, materially-engaged project on a contemporary issue is rather about the present, as well as how apparently unrelated subjects relate to each other.

Red and Green: The Green Revolution and Science in the Context of Socialist Planning in Poland Dong Ju Kim, Korea Advanced Institute of Science and Technology (KAIST) The so-called Green Revolution is considered to have taken place in the earlier part of the twentieth century, and to have reached its apogee during the Cold War. In this paper, I review the history and prehistory of agricultural paradigms and paradigm changes in the context of Eastern Europe before and during the Cold War. More specifically, I start with the rise of the chemical paradigm in agriculture in nineteenth-century Europe, and trace the boosting of this chemical paradigm which was closely linked together with the rise of the chemical industry and socialist planning after World War II. I examine this industrial and agricultural policy together with dominant theories in agricultural chemistry and soil science in socialist Poland. Based on this historical approach, I argue that the paradigm shift from chemistry to biological breeding and microbiology, and the change of focus from quantity to quality was the most important change in socialism, which in turn led to alternative, regime-challenging ecological paradigms in soil science, which provided the historical context for environmental movements in the 1970s and 80s in Poland. This shift was also accompanied by changing notions of visibility and productivity, especially in view of the development and application of visual proof in microbiology and visible environmental concerns after the post-war period of rapid reconstruction. I shall also discuss the methodological difficulty of applying STS-informed ethnography to historical primary sources in an historical context, and how the nature of historical documents affects the writing of ethnography and historiography.

Reflecting STS: A Historical Review of STS in Mainland China Zhengfeng Li, Institute of Science, Technology and Society, Tsinghua University; Xiao Lu, Institutes of Science and Development, Chinese Academy of Sciences Abstract: This paper examines the historical development of STS in China in relation to the features of contemporary Chinese society as in the aspects of the Marxism tradition, the opening of China, the system reform, the catching-up state in S&T and its oriental traditional culture. Marxism, especially natural dialectics, had a profound impact on China’s STS knowledge system, research team and discipline building. While, after 1980 with the opening of China, Western theories on sociology of science have been introduced into China and formed an ever-changing relationship with Marxism (natural dialectics). The system reform in China not only raised questions for STS scholars, but also provided an opportunity to rethink relevant STS issues and possibilities for participatory research. In the meantime, the conditions of China as a catching-up state in science and technology, alongside with its oriental cultural traditions and the particularity of Chinese society have brought more special questions for STS research. Through studying the history and influencing factors of STS development in China, we further reflected on the relationship and paradox between Marxism and Western academic tradition, the object and nature of STS study, as well as the significance of STS research in East Asia and China. As a case study of the social studies of STS itself, we would like to provide a new perspective for the theoretical and disciplinary development of STS.

Chair: Martina Schluender, University of Toronto

166. Re-assemblage Urban Life: STS and the Making of Sustainability I

Traditional (Closed) Panel

9:00 to 10:30 am

Sheraton Boston: Floor 3 - Hampton B

Making cities sustainable is high on policy agendas, from local municipal plans to international agreements. The issue is how to achieve this goal, but also to reach an understanding of what the goal entails, and how it feeds into the production of a different kind of city. How do efforts under the banner of sustainability influence the everyday life in cities? Which kinds of knowledge regimes are involved in transforming abstract ideas about sustainability into concrete policy? What are the dominant understandings of change, rationality and agency that underlies current efforts to transform urban spaces? This session presents research that illuminates efforts to re-assemble city life to achieve sustainability transitions and how STS provides intellectual tools to make sense of these efforts. These efforts includes transformation of transport systems and technologies, densification, citizen engagement, accounting technologies, sustainable energy, and “smart” designs. The session will make use of STS approaches to investigate the construction of ideas about sustainability and socio-technological approaches to realize these ends. In this way, it will demonstrate the potential of STS to sustainability transitions but also critically scrutinize the need for new theoretical developments.

Participants:

Materialized energy citizenship and the sustainability transition: material interventions and their consequences Marianne Ryghaug, Norwegian University of Science & Technology (NTNU)

If cities are to be made more sustainable this endeavor will have to include and be supported by the public, both discursively and in practice. One way to engage citizens in urban sustainability
Transitions is by way of creating materialized energy citizenship: engagement that is produced with new material objects in everyday life, such as electric cars, smart meters and PV panels.

In this paper we analyze the way the ongoing introduction of such material objects, provide critical articulations and disruptions of routine. We highlight the way these emerging technologies can be seen as material interventions co-constructing temporalities of new and sustainable practices and energy dialogues. We argue that artefacts, like the electric car, the smart meter and PV panels may become objects of participation and engagement, constituting new foundations for building materialized energy citizenship in the urban landscape.

We also discuss some consequences of having an object centered and materially focused perspective on engagement and participation. Does it entail that materialized energy citizenship only can include those that have the ability to acquire and engage with emergent technologies while excluding others from taking part in sustainability transitions or may this be seen as a strategy of engagement and inclusion that may go beyond such a pessimistic interpretation?

Transforming cities through re-assembling material flows: energy, food and new collectives Tomas Moe Skjøtsvold

Urban areas serve as a nexus of infrastructures that conduit countless socio-material flows: of energy, goods, people, resources, and various machines made for transportation. These flows are essential constituents of city life as we know it, in the sense that without them we would not be able to eat, drink, shop, work, organize and live as we do in and around cities. Cars, trucks, trains and trams enter and leave cities, circulate within cities, connect with institutions, businesses, and other actors that populate the urban space. The same is true for electricity networks, and their millions of nodes. Through countless value chains and networks, these material flows can be traced back to the production of food, energy and other goods, far outside the boundaries of what we typically think of as “the urban”. Through these flows, everyday life in urban settings become linked to the use of resources such as fossil fuels. The transformation and greening of such flows is essential to advancing an urban low carbon agenda. While authorities at various scale are struggling to implement policies that would govern cities towards a greener future, many unexpected actors are now engaging with new technologies and new modes of socio-technical organization, in order to produce such flows that operate in new ways, without fossil fuels. This paper mobilizes empirical data from studies of how such transformations are currently enacted by actors in the energy business, and in the food distribution sector. Through such examples, it discusses the character of such socio-technical change in material flows, including the shifting roles of incumbents in different industries, the links between the urban and non-urban spaces, the role of knowledge producers, as well as how actors work strategically to gain support for the new and sometimes surprising constellations that might emerge. The paper aims to flesh out both empirical conceptualizations and theoretical contributions to the understanding of urban energy transitions.

Sustainability and the Danish energy and transport sector: Investigating controversies in a scenario planning process Meiken Hansen, Technical University of Denmark; Per Dannemand Andersen, Technical University of Denmark

Public controversies provide opportunities for engaging stakeholders in research in new ways (Landstro, Ward, and Bradley 2011). Participatory processes involving stakeholders and citizen are crucial to secure impact on actual policy making. This may be the reason why public engagement in science and technology has been studied for several decades (Stilgoe et al. 2014, Selin et al. 2016). This paper investigates controversies (Callon 1986; Callon et al. 2009) which occur during the participatory and public events in the COMETS project. The project combines models (an energy system model and a behavior based national transport model) with stakeholder participation, ultimately to involve the Danish parliament’s Standing Committee for Energy, Utilities and Climate in the planning process.

The research questions are: how do different actors contribute to scenarios through various stakeholder involvement methods; and, how are the dominant controversies in the process discussed among the different actors? The data for this paper originates from workshops, interviews, and public involvement events during which a set of narrative scenarios was: first, created; second, translated into model-parameters; and third, evaluated by stakeholders and citizen. This study contributes with knowledge of stakeholder and public-involvement in a transdisciplinary project.

Preliminary results show that occurring controversies in the field become apparent through the process of creating narrative scenarios. In the process of co-narrating the new different actor groups, including policy makers, contribute to a broadening of the knowledge base among the scientists and modellers. Furthermore, the process did increase the perspectives on both local knowledge and place-based expertise.

A tale of two technologies – sustainability transformations through public transportation in two local governments in Norway Lina Ingebrigtsen

Transition towards sustainable transport in cities calls for a broad array of transdisciplinary knowledge, actors and politics, but also technologies. What technologies are chosen in order to enact urban sustainable transport in cities, and not least – what does this choice entail? This paper adopts a bottom-up perspective focusing on the actor-networks constructing the transformation of sustainable public transport. It shows how the idea of a sustainable transport system is constructed and how such ideas are stabilized, and further what kinds of assemblages that are constructed in this process. The paper empirically explores sustainability transformations through two public transport technologies in the two Norwegian cities of Bergen and Trondheim. These cities have chosen to focus particularly on two different technologies: Trondheim has decided on a new and more sustainable bus system (“superbus”), claiming an identity as a bus city, while Bergen has invested in a light rail system as a defining quality of their urban identity. The choice of transport technologies in Bergen and Trondheim has mainly been explained with topographic rationales (the city as axis- or circle shaped). However, the paper finds that the choice is much more complex. The chosen transport technologies become co-produced with ideas about sustainable urban development, for example related to the issue of densification. Moreover, two different co-productions of transport identity were found in Trondheim and Bergen. These identities had implications for the future development of these cities, and were enrolled in, respectively, a short-term and long-term perspective of city and transport planning. The paper draws on 12 in-depth interviews with planners and politicians, analysis of relevant documents and newspaper articles, and one month of shadowing in the transport planning offices of Bergen and Trondheim.

Chair: Marianne Ryghaug, Norwegian University of Science & Technology (NTNU)

167. STEM Education I: The Power Dynamics of Technoscientific Educations Traditional (Closed) Panel

9:00 to 10:30 am
Sheraton Boston: Floor 3 - Jefferson

This sequel to a 2015 open session looks at schools through an STS lens as sites of technoscientific occupational and ideological production. Since 2015, some state policies have shifted towards more frictional, nationalist, and conservative directions, e.g., in US, UK, and Turkey, simultaneous with a redoubling of neoliberal commitments globally. How these systems impact in the formation of STEM (science, technology, engineering and mathematics) educations is the subject of this panel. We seek papers that explore, interrupt, rearticulate, critique STEM education policy or practice with in the contemporary contexts. In the 2000s STEM emerged as an articulation of traditional distinct disciplines. STEM promoted neoliberal,
capitalist, and militarist logics/priorities, e.g. in its emphasis on human capital, promotion of market hegemony in the purposes of science and mathematics, and its fetishization of entrepreneurial subjectivities. Political ruptures such as Brexit in the UK and the election of Donald Trump in the US signal a shift or retreat in the circulation of these discourses. Even earlier, the passage in the US of Every Student Succeeds Act signaled power’s operations away from central managerialism. With rising conservativisms, governmental power is shifting to networks that challenges climate change, promote resource extraction, and endorse religious ideologies promoting conservative national, racial and gender orders. This panel invites papers that examine both the articulation of STEM educations to this new ideoscapes and that examine either strategic or unconscious resistance to those logics at the levels of policy or practice through philosophical, discursive and/or empirical work, globally.

Participants:

Where is the social in STEM? Sarah Stapleton, University of Oregon

As the neoliberal driven, technocratic acronym “STEM” takes hold in education, what do we lose? The ubiquity with which “science education” has been replaced in teaching, programmatic, and funding initiatives with “STEM” is alarming. The STEM construct gives automatic, unquestioned legitimacy to technical fields while it simultaneously lumps and subsumes these fields together. Additionally, an acronym that is often used to encourage interdisciplinarity also limits which disciplines fall within its jurisdiction. Through the simplicity of an acronym, we create boundaries, restricting possibilities for educating about connections between science and the social. This paper is a theoretical consideration of how a technocratic STEM renders direly critical sociopolitical issues invisible to and beyond the realm of science education. More specifically, typical interpretations of “STEM” exclude social issues, humanities, and social justice, and, in doing so, negatively impact science education. While there have been attempts to expand the tightly governed boundaries set by STEM though the creation of new acronyms—e.g. STEAM, E-STEM, STEM-Ag—the need to expand the acronym indicates a discursive limitation. This paper will consider specific ways in which the STEM acronym limits educational initiatives and proposes some suggestions for creating more space for the social in science education.

Racist, Classist, Colonizing Neoliberal Fuckery within STEM Eduspeak: Counter-Stories from the Front Lines Jean Aguilar-Valdez, Portland State University

Neoliberalism in education is an ideology that has led to a surge in public schools towards competitive individualism and quantified accountability through standardization of knowledge, high-stakes testing, and sanctions for failure, informed by capitalistic free-market perceptions of “success” in a financialized business setting (Giroux, 2005). In science (and now the sexy new well-funded conglomeration of STEM and STEAM) education, this has led to a devaluation of creativity and innovation (even as it claims to increase these practices), focusing instead on dispassionate, prescribed, contrived approaches to "doing STEM" that subtracts the human-centeredness and community-centeredness of these approaches for the sake of promoting "21st century skills" or "competition in the global marketplace.” This neoliberal eduspeak has especially detrimental impacts on schools serving communities of color who struggle with poverty. The dialogic trend in public schools is moving toward notions of education “reform” that frame STEM as a tool for economic gain and STEM learning as a quantifiable commodity; employing behaviorist notions of “intelligence” and “success” and assessment in the name of “accountability.” This dehumanizes students, teachers, and understandings of education and of the greater purpose of engagement with science, technology, engineering or math - which is more humanistic and community-based. This paper endeavors to re- emphasize the human face and expose the human traumas that this kind of eduspeak inflicts in schools. To do so, this study shares the ethnographically collected stories of an African-American high school science teacher, Ms. Bowen, and her students of color in a Title 1 public high school. Ms. Bowen’s story counters dominant narratives of “achievement” in educational eduspeak, by naming systems of oppression within today’s neoliberal landscape in public schools. Her students also share their stories of injustice due to school testing policies that they deem racist and classist. Put bluntly, this study reflects the researcher, teacher, and students’ estimation that the neoliberal trend within educational discourse is a destructive and entrenched form of “fuckery” that has its tentacles in many aspects of our educational stage all at once. Fuckery is here operationalized as an intentional and systematic warping of education and of the capacities of science, technology, engineering, and math education, through manipulating the language surrounding these endeavors, the purpose of educating, the players involved, the policies surrounding it, the praxis of how it is taught, and what counts as successful within its narrowly constructed and gerrymandered borders. Naming the fuckery of today's STEM eduspeak, as forthrightly as possible, with full intention as to the terms used to describe its harm, is the only way to push back against the onslaught of its unchecked destruction.

Counterhegemonic Technology Integration Jarek Sierschynski, University of Washington Tacoma; Dominic Jay Crisostomo, University of Washington Tacoma

“In similar ways to the Black Panther Party and Black Liberation Radio, resistance has been a motivating factor for musicians in the re- conception of technological artifacts, practices, and knowledge. One example of this can be seen with DJs and the act of scratching.” (Fouché, 2006) This paper reports on the multi-year technology integration project involving a summer STEM program for youth and a small portable synthesizer. Our focus is the design and development of a counterhegemonic technology integration model by reframing and decolonizing STEM practices to support youth of color in an urban setting. We approached our project by asking two main questions: (1) what aspects of technologies are able to reflect identities and cultures of non-dominant students and (2) what are culturally consequential technologies and teaching practices in our local community silenced by dominant educational spaces? Our search for culturally relevant technologies lead us to a synthesizer because, next to its unique design, historically, instruments and musicians straddle the fussy lines between art, science and technology (Pinch & Bijsterveld, 2003; Smith, 1970). These permeable boundaries make room for cultural, shared and individual expression, ultimately mediated by a sophisticated scientific and cultural instrument. Our approach is to dehegemonize technology integration and to frame it through a local lens and community cultural assets to the definition of technology. By using the Alaska Native Knowledge Network Guidelines for Educators (2012) as our pedagogical guide, we attempt to decolonize dominant conceptions of STEM curriculum by decentering their definitions of technology, STEM pedagogies and spirit of technological determinism.

The Future of Education: The problem of cultivating the unique human capacities required in the age of robotics Lars Geer Hammershaj, Aarhus University

Studies of future employment suggest that up to half of all existing jobs are in high risk of being automated in the next decades. Furthermore, there is consensus that the tasks that appear resistant to automation are characterized by non-routine processes or unpredictable outcome, and that they require unique human capacities, such as social intelligence, creativity and innovation (Frey & Osborne 2013; Brynjolfsson & McAfee 2014). These profound changes of the nature of employment and the accelerating pace of change present a major challenge to education, and make it more important to cultivate the younger generation’s capacities for sensing, understanding, handling and creating change. In order to do so, we must understand the nature of the unique human capacities. My hypothesis is that these capacities are affective in nature and involve judgment processes based on emotions and transcendence processes based on mood. My analysis strategy is to diagnose the tendencies of future
employment and education. On this basis, I develop a conceptual framework for the affective nature of the unique human capacities by drawing on conceptualizations that understand creativity and innovation as questions of will, intuition and aesthetic sensibility (Piaget 1908, Schumpeter 1934). Finally, I contribute to STS by discussing the paradox that computers and robotics have made rapid change possible, but cannot solve tasks of change themselves, for which reason the machines will become more depend on human capacities in the future.

Modern Engineering Technologies and Their Impact on Contemporary Engineering Work

Po-Jen Bono Shih, Virginia Tech

My research seeks to examine various sorts of modern engineering technologies used in the production of knowledge and artifacts in different engineering fields, and discusses the consequence of each technology (or each set of technologies) for the participants’ work patterns, engineering identities and their perception of engineering work. Insofar as engineering technologies are naturalized by participants and simplistically lumped together by scholars in the singular technology, this particular lack of insensitivity to the material foundations underlying engineering practice, unfortunately, renders their impact on contemporary engineering work long overlooked and unquestioned. In my case study of the Department of Electrical Engineering at a top university in Taiwan, I show that a distinct set of common research questions, along with the engineering technologies and knowledge that are generally geared toward these questions, can be more or less identified in each subfield of electrical engineering. The implications of different sets of technologies go beyond distinctive levels of prestige accorded to each subfield. The practitioners’ quality of life and their career mobility and trajectories are also often bounded by technologies which they rely upon. While I straddle my theoretical framework between “technological determinism” and “social constructivism” as have documented the mutual shaping of humans and technologies that are always in flux at various stages of work, the paper’s discussion is nonetheless focused predominantly on the nature of engineering technologies and how they have shaped modern engineering work. This contributes to greater understanding of modern engineering technologies and its relevance to engineers and their life.

Bearing a Barren Body. Shaping Women’s Bodily Experiences in IVF Treatments

Marjo Leen de Boer, University of Oslo

Fertility treatments such as In Vitro Fertilization (IVF) are particularly bodily invasive for women who opt for this treatment. These women typically undergo cycles of hormone injections, blood tests, trans-vaginal ultrasound scans, egg collection through transvaginal aspiration or abdominal surgery, and re-insertion of the fertilized egg. As such, their bodily experiences are shaped within and through these medical practices. By building on feminist STS scholarship and (post-)phenomenological theories of embodiment, I explore how these women’s bodily experiences and dealings are shaped in IVF. In doing so, I endorse the idea that experiences do not take shape in a subjective vacuum but are rather constituted in relation to political, cultural, and often normative discourses surrounding, for example, infertility, un/natural fertilization, and technologically engineered bodies. On the basis of Norwegian women’s IVF stories as teased out in-depth interviews, I will discuss how two of such (interrelated) discourses feed into the ways women experience their embodied situation in IVF. How are these women’s bodily IVF experiences and dealings constructed in relation to (1) the depiction of women as cyborgs and women’s bodies as a palpable vessel for designer babies; and (2) the construction of infertility as a medical women’s problem? By describing the impact of these normative discourses on women’s bodily experiences in IVF, this study subsequently draws attention to the importance of including such politico-culturally embedded experiences in ethical deliberations about IVF and fertility treatments at large. So finally, I will give an ethical reflection related to the issues of bodily enhancement and the medicalization of female bodies.

The Development of Male Contraceptive Technologies from a Feminist and a Post-Colonial Perspective

Miriam Klemm, Technische Universität Berlin

My PhD research investigates the development of male contraceptives, more precisely, of long-acting, reversible contraceptives (LARCs) directed at the sperm-producing body. I started off with a focus on the co-construction of gender and technology. Yet, during my empirical work on male contraceptive development, I found a different significance of gender for innovation strategies in the USA and in India. Constraining a highly gendered male contraceptive technology seems to be a specific approach. This approach is pursued in the USA, where the development of male LARCs is an explicit negotiation of gender relations and the construction of a specific masculinity for future users is a crucial part of the innovation challenge. In contrast, for the development of the male contraceptive gel RISUG in India, gender is one theme but not the central issue. The innovators of this LARC mainly frame it as an indigenous innovation and a non-hormonal contraceptive. On the one hand, they relate their invention to the country’s recently established self-conception as a birthplace for innovation. On the other hand, Indian innovators distance their product from the dependency on the hormonal path to male contraception in the West. In this paper, I will discuss the gender and the post-colonial approach to innovating contraceptives directed at the sperm-producing body.

The Construction of Sex Ratios in Population Sciences and Social Movements

Rajani Bhatta, University at Albany, SUNY

Drawing on an historical analysis of the construction of sex ratios in demography and social movements, I interrogate sex ratios as artifacts that can reveal and obscure realities. Feminist social movements of a variety of political stripes deploy them, avoid them or reinterpret them when making claims to support justice or equality agendas. I disentangle the threads that bind sex ratios to the issue and politics of sex selection in order to reveal the uncertainty of their relationality that often gets blackboxed in the portrayal of imbalanced sex ratios as hard evidence of sex selection practices. Today, sex ratios are so often referenced in
conjunction with sex selective abortions that each acts as a sign for the other. How are sex ratios enrolled in statistical processes that abstract humanity? How can imbalanced sex ratios be called upon as markers of gender and/or racial inequality? I analyze how activist assertions mobilize or mystify sex ratios to back a set of competing versions of the truth. To this end I reflect on the power of the unknown – that it is sometimes not possible nor desirable to identify or quantify a reproductive practice. Central to the neoliberal zeitgeist, unknowability respects privacy, liberty, and the rightness of individual choice. Normally, these values associate with mainstream reproductive rights, but U.S.-based API reproductive justice advocates also embrace the unknowable account to protect marginalized and racially stigmatized groups in the context of an ascendant anti-abortion politics.

Worlds Apart? The Emergence of Cell Free Fetal DNA Testing in Austria Ingrid Metzler, University of Vienna, Department of Science and Technology Studies

This paper engages with the emergence of cell free fetal DNA (cfDNA) testing in Austria. CfDNA testing is a practice that draws upon next generation sequencing technologies to transform fragments of fetal DNA in a pregnant woman’s blood into information about a fetus. Since the end of 2012, this practice has begun to be adopted in particular in private health care settings in Austria. While this paper takes an agnostic approach towards cfDNA testing, it deems the private shape of the emerging world of cfDNA testing in need of explanation – not least, as this world emerges in a country where citizens and state authorities take pride of the public nature of its health care system. Using materials from an ethnographic study in which cfDNA testing is followed around as it is adopted, problematized and governed at multiple sites, the paper distills various visions and values articulated at these sites, and explores how these enter into conflict and conversation. It argues that the post-genomic world of cfDNA testing emerges in the context of two worlds apart: a world of public prenatal care in which technologies are envisioned to “save lives,” and a private world in which technologies are envisioned to enable women to make informed choices. While the co-existence of these worlds can be understood as the effect of moralized debates on how to take care of unborn human life, the paper also highlights the work of professional organizations in drawing boundaries between “live saving” technologies and “technologies of privatized choices.”

Chair: Ingrid Metzler, University of Vienna, Department of Science and Technology Studies

169. Toxic Torts and Persistent Polluters: Persistent Polluters and Citizen Science

Traditional (Closed) Panel
9:00 to 10:30 am Sheraton Boston: Floor 5 - Public Garden

For decades, people in the United States and in the rest of the world facing health hazards posed by industrial toxic chemicals have taken novel initiatives to overcome various boundaries and to produce useful knowledge for addressing such predicament. Popular epidemiology initiatives to overcome the science-law divide. STS scholarship can be very useful in such public controversies as “translation” in its multiple connotations has long been a staple of our trade. This panel explores historical and ongoing toxic tort cases and related controversies in various national contexts and tries to make sense out of our complex but shared experience. The first session focuses on the respective roles of expert citizen science in challenging the business as usual of ‘persistent polluters.’ The second session emphasizes the specific function of law and the court system.

Participants:

How Naive Experts Use Citizen Science to Cope with Air Pollution in China Rodolfo Andres Hernandez, Tsinghua University; Zhengfeng Li, Institute of Science, Technology and Society, Tsinghua University

This article discusses how China’s new era of air pollution control has provoked the engagement of groups of urban residents and nongovernmental organizations (NGOs) to adopt citizen science and disseminate technoscientific knowledge. Their actions include sharing photographic records, posting scientific evidence online, testing air purifiers and air pollution masks and reporting data results from low-cost sensors. The interviews with the leaders of these initiatives show the changing patterns of pollution activism in the country and the civic and resistance approaches that have displayed technoscientific knowledge. Following recent work of citizen science as resistance in China and on pollution activism, the civic adoption of scientific knowledge and technological devices is presented as instrumental to activists but also problematic to navigate through the complex participative context of the country. The dynamism of the actions, first marked by the mistrust of official data and then expanding to other agendas, brings a novel approach about resistance in the context of environmental health crisis in China.

Collapsing Quality and Safety: Standardizing Milk in China after Melamine Megan Tracy, James Madison University

In October 2011, Mr. Zhao, a consumer, filed an open information application as part of China’s “sunshine laws,” requesting the then Ministry of Health disclose meeting minutes related to a 2010 revision of China’s national raw milk standard. Because it lowered the quality and safety threshold for raw milk supplies, consumers interpreted the revision as a blow for consumer safety and a win for China’s dairy industry still reeling from the 2008 melamine adulteration scandal. To shore up consumer confidence and demonstrate the safety of domestic products, industry actors and policymakers emphasized technologies and policies that would ensure a higher standard of milk quality and safety—from a push to centralize production by moving farmers and livestock to “cow hotels” to the installation of surveillance cameras to more easily monitor the food-to-table chain. In spite of these efforts, food safety scientists interviewed during fieldwork conducted in 2012 and 2013 in northern China dismissed the entire standard as an issue of quality and not safety. In this paper, I disentangle the manner in which the ideas, actions and consequences of quality and safety are collapsed in techno-legal discursive practices to such an extent that one is used to make (non)sense of the other. I also use the 2010 revision and its ramifications to explore scientific experts’ and government officials’ efforts to convey the standard to different sets of actors (including farmers, consumers, site managers, corporate representatives among others) not as acts of translation but rather acts of transformation and reformation as regulations and regulatory practices move across various sites and through disparate media.

The Politics of Science in the ‘Samsung Leukemia’ Case JONGYOUNG KIM, Kyung Hee University

Science plays a pivotal role in health disputes. A labor health dispute between a multinational corporation and patient-workers in Korea received enormous attention from 2007 onward. Sick workers of Samsung Semiconductor claimed that they were
contaminated by toxic chemicals at their workplace, which resulted in their sickness, a contested illness known as “Samsung Leukemia”. In this dispute, the Korean government and Samsung used epistemological studies to deny the workers’ claims. The patient-workers politicized the industrial disease, forming an embodied labor health movement advocating for workers’ rights and welfare, and developing their own bottom-up science. In this process, patient-workers and counter-experts have built up a science of the weak through collaborative expertise from below that collects evidence from their factories and connects this evidence with the claims of counter-experts’ scientific authorities. This elusive and complex health dispute has generated intertwined scientific, political, and legal struggles for many years. The multidimensional inequalities are manifested in the industry’s control of and monopoly on labor and environmental information, the Korean government’s conservative management of workers’ compensation, a rigid legal system and high burden of proof for determining the causality of disease, and an inflexible scientific system that studies the causes of disease. This research analyzes how science and expertise on a particular industrial disease is construed and contested within the political economy of labor health, i.e. the unequal political, economic, and scientific systems dealing with labor health.

Science in Pollution Politics: Schoolchildren as “Guinea Pigs”? Wen-Ling Tu, National ChengChi University, Taiwan; Chia-Liang Shih, National Chengchi University

Good policies are based on sound information, but more science does not necessarily lead to better solutions. In this study, we will explore the health risk assessment disputes from a case example near the Sixth Naphtha Cracker Complex (SNCC) in Taiwan. In 2013, the National Health Research Institutes and Professor C. C. Chan of National Taiwan University jointly conducted an epidemiological study on the schoolchildren living near the SNCC, and found significantly higher levels of TdGA in their bodies. The VCM plant of the SNCC was suspected as the cause and the government opted for temporary relocation. However, the parents challenged the scientific data and requested other researchers to conduct more investigations, but the environmental groups alleged conflicts of interests between these contracted researchers and the SNCC. When scientific knowledge is applied to policies, different research questions, assumptions, monitoring methods, and data applications may yield different political judgments. The research design, mastery over the original data, knowledge production sponsorship, and study outcome interpretation can also affect the scientific results in policy formulation. In this study, we will analyze the role of scientific research in political controversies under the perspectives of “undone science” and “manufacturing doubt,” and argue that more scientific studies do not necessarily lead to better solutions. This research analyzes how science and expertise on a particular industrial disease is construed and contested within the political economy of labor health, i.e. the unequal political, economic, and scientific systems dealing with labor health.

Toward a More Critical “Critical Design”
Matt Ratto, Carl DiSalvo, Phoebe Sengers, Philip Agre

This paper explores conceptual and institutional opportunities and challenges faced by STS scholars practicing STS through and with design practice. It argues for a reflexive and affective approach to engaging diverse participants in interdisciplinary design collaboration as a way to circumvent disciplinary boundary work that impedes collaborative inquiry. Rensselaer’s Programs in Design and Innovation (PDI)—a set of undergraduate interdisciplinary, hands-on, studio-based design programs whose intellectual and administrative home is Rensselaer’s Department of Architecture—has been conceptualized by STS faculty as one instance of our department’s self-consciously “engaged” approach to STS scholarship. Despite a predominantly productive relationship between STS faculty members who participate in PDI and those who do not, challenges repeatedly arise around disciplinary identity formation (mostly of our students as “designers” and not “STS scholars”) and boundary work over whether various activities or components of the program are sufficiently “STS.” Drawing on my own 15 years’ involvement in the program, the past 6 of which I have served as program director, the paper will show how our STS approach to design embraces the world-making approaches of other disciplines even as it seeks to deconstruct and re-construe them. While much of contemporary work in STS and design is situated within a critical making or reflective design tradition (drawing for example on the work of Matt Ratto, Carl DiSalvo, Phoebe Sengers, Philip Agre), this paper will go back a bit further to Donald Schön’s work on reflection-in-practice to advocate a standpoint epistemology that reflexively and affectively engages different types and domains of disciplinary expertise in design that responds to complex sociotechnical problems.

Toward a More Critical “Critical Design”
James Malazita, Rensselaer Polytechnic Institute

The calls for more “Making and Doing” within STS often position STS scholars as critical imagineers who prototype and develop technologies that privilege semiotic functionality over material embodiment and stake STS scholarship as critical imagineers who prototype and develop technologies that privilege semiotic functionality over material embodiment, and stake STS scholarship as critical imagineers who prototype and develop technologies that privilege semiotic functionality over material embodiment and make innovative contributions to culturally relevant critical-creative interactions, both the products and processes of humanistic engagement can be exported—either to STEM or to the public at large—to transformative effect. That, in effect, our making difference is a pathway to making better. If we are to answer these calls to use “making and doing” to both...
diversify STS practice and create social critical change, we could
learn valuable lessons from reflections upon the well-intentioned
mistakes that are already occurring in technocratic spaces. This
talk will trace a brief history of “Critically-informed” design
practices from various academic disciplines, and articulate why
many of these practices have had limited success creating
substantial social change outside of academic spaces. In
particular, this talk will argue that, 1: humanists and social
scientists embedded in design practices are often sidelined into
interceptive roles rather than productive ones, and 2: contrary to
the traditional strengths of STS, Critical and Speculative Design
methods often imagine technological design as the creation of
artifacts, rather than as the modification of pre-existing systems.

An Attempt at Designerly Leaps beyond Making Sissel
Olander, The Royal Danish Academy’s School of Design; Li
Jönsson, The Royal Danish Academy of Fine Arts Schools of
Architecture, Design and Conservation

This paper is situated on the intersection of STS and design and
aims to discuss a range of different sensibilities around the
concept of “doing” STS. Here we are particularly interested in
the potentials of exploring design not only as a making practice,
but somewhere beyond. From within STS analytic-descriptive
communities design tends to be either problematized as a less-
reflective practice with a tendency to frame singular prescriptive
futures, or hailed as offering creative and aestheticized forms of
critique. While such critical analyses are certainly valuable and
necessary, in this paper we attempt to engage with a more
diversified and contradictory analysis of “doing” STS through
designerly making. Subsequently, we ask: what happens when
design tries to move beyond the aesthetic of matters-of-facts, of
objects, of ‘gegenstände’, as suggested by Latour? And what
other conceptualisations might come into being when design is
not only prescribed as an agent that imposes form upon
materials? The paper explores the capacities of design as
alternative ways of doing and making, informed through the
(in)senstivities of caring, maintenance, making, mending and
growing. Through a series of design research projects we
exemplify how these different sensibilities may give us a hint of
what happens when design makes a leap beyond the ideas of
completed and finished objects. In this way, the paper seeks to
complicate both critical and hopeful conceptualisations of design
and instead suggests various productive, if also sometimes
contradictory, nuances of design - to which STS research can
open both its vocabulary and senses.

Claims of Equity and Expertise: Feminist Interventions in the
Design of DIY Communities and Cultures Ellen Foster

Universal design strategies attempting equality have long been
problematicized by feminist scholars, critical race theorists, and
disability scholars. Feminist theorists have critiqued design and
the co-construction of technology and gender by calling for
feminist design strategies within a typically male-dominated
field. Meanwhile, scholarship on infrastructural design works to
make the invisible visible by highlighting maintenance work and
exclusionary practices within design that are often normalized and
remain unnoticed. This paper presentation will examine what
these critiques might reveal in Do It Yourself (DIY) and maker
cultures, where claims of the user as designer often comes with a
baseline assumption of broad inclusion. Within makerspaces and
fab lab communities, there is often an outward facing discourse
of inclusion and equality – that everyone makes and everyone
can become a maker: thus resulting in equitability of designs. Yet
implicit barriers, particularly in terms of gender, race, and class,
still persist in maker cultures and communities. Often, the
knowledge, skills, and technologies that are seen as indicative of
a technological mindset exclude particular lifestyles or expertise
from staking their claim as important contributions to the
technological design landscape. In response to this, taking up
arguments initially delineated by feminist and queer scholarship
within design and Science and Technology Studies, feminist
hacker collectives such as Femhack, Spanning Tree, Liberating
Ourselves Locally, and many more are making the case that in
order to be more equitable or inclusive, the design of such DIY
spaces and cultures needs to be reflexive within their
organizational design and skill-sharing tactics. This paper
presentation will examine the biases within the discourse and
design practices of skill-sharing communities known as
makerspaces and hackerspaces, with a particular focus on
alternative possibilities within the counter-narratives of feminist
hacker collectives, repair groups, and library spaces that focus on
marginalized narratives in technology and design.

Design for Living Complexities: An Experiment in Teaching
Critical Thinking about Design Peter J. Taylor, UMass
Boston

This paper describes the process of developing, teaching, and
responding to evaluations of a post-graduate course on critical
thinking about design in general, not in any specific arena.
Design is construed as being about intentionality in construction,
which involves a range of materials, a sequence of steps, and
principles that inform the choice of material and the steps.
Design always involves putting people as well as materials into
place, which may happen by working with the known properties
of the people and materials, trying out new arrangements, or
working around their constraints. Critical thinking involves
understanding ideas and practices better when we examine them
in relation to alternatives. In a sense, critical thinking is in design
from the start, because design cannot proceed without the idea
that there are alternatives to the current way of doing things. The
course exposes and explores alternative designs through history
(showing that things have by no means always been the way they
are now), “archeology of the present” (shedding light on what
might have taken for granted or left as someone else’s
responsibility/specialty), comparison (looking at the ways things
are arranged in different organizations and cultures), and ill-
defined problems (in cases of real-world “living complexity” that
invite a range of responses). The paper will reflect on what
happened to produce evaluations like the course “has permeated
all of the boundaries of my life and enabled me to take real
control over the ways I am teaching, living, and processing my
experience of the world.”

Chair: James Malacita, Rensselaer Polytechnic Institute

171. Community Informatics and Science and Technology
Studies

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 5 - The Fens

Community Informatics (CI) addresses concepts in the scholarship on
computing phenomena regarding how individuals and groups can move
from normal-experiencing digital connections to deeper relationships,
including shared behavior and the formation of community identity. It
concerns how local, historical communities are using information and
communication technologies in support of their own development goals. As
a field focused at the intersection of research and practice, CI provides a
unique space to examine how applied conceptual frameworks can guide
meaningful work, particularly in the non-profit/public sector, where
technologies are involved. As the balance of power among groups is often
unequal and resources are used differently, CI presumes a critical need to
explore not only how communities access, create, organize, and share
information, but also the types and qualities of connections between and
among their members and networks. This panel seeks to examine the
contributions of CI to STS and vice versa by bringing together scholars at
the intersection of both fields. While CI often draws from STS studies, few
academic forums have provided opportunities to explicitly consider how
the two fields can benefit from each other. Nuanced conceptualizations and
robust research designs are needed to advance collaboration between both
fields. STS-based theory and frameworks offer promising concepts and
approaches to CI researchers, and CI in turn supports productive
information systems presents an opportunity to deepen its focus, for example, on
the infrastructural concerns within STS. This panel will provide a forum for
STS scholars studying any aspect of community informatics, culturally-
situated design tools, and appropriated technologies and to share research
and exchange ideas about knowledge gaps and strategies for future research.

Participants:

Citizens, Safety and the Precariousness of Digital Community Initiatives Jason Pridmore, Erasmus University; Anouk Mols, Erasmus University

This paper focuses on the interconnections between technologically mediated ‘communities’ focused on safety, and everyday negotiations citizens make in participating in such contexts. Since 2013, neighborhood watch messaging groups have been formed in over 5000 neighborhoods across the Netherlands. The move to (virtually and physically) produce ‘safer’ neighborhoods is precipitated on the use of mobile technologies, predominantly through the mobile messaging service WhatsApp. Citizens use this to connect with each other, indicating safety concerns and potentially informing safety officers and police regarding certain circumstances. Despite the inclusive use of WhatsApp among Dutch citizens, elderly and cultural minorities do not fully participate in these groups. Moreover, some citizen actions prompted by such communication crosses ‘lines’ of police territories and participant privacy, creating tensions among and between citizens, police and municipalities. Our findings in this paper highlight the precarious nature of technologically mediated communities in practice, balancing issues of informational power alongside an experience of ‘living together’ in common neighborhoods. Based on interviews and focus groups, our examination of these citizen initiated activities provides us with an in-depth understanding of the intertwined and culturally appropriated use of technology situated within geographically bound locales. It suggests that for some members, digital interactions provide meaningful connections that either reinforce or act as a substitute for face to face interactions. Through an STS focused analysis of ‘technology in practice’, the findings of this paper carry significant implications for how we might understand the potentials and problematics within citizen engagement through digitally mediated communities.

Narrating Disaster, Contesting Reconstruction: Design Notes on Practices of Damage Assessment in the Wake of the 2015 Nepal Earthquake Robert Soden, University of Colorado Boulder; Austin Lord, Cornell University

This paper examines the politics and practices of damage assessment in the Langtang Valley of Nepal following the devastating April 2015 Gorkha Earthquake. During the earthquake, massive avalanches and landslides inflicted significant damage throughout the valley, destroying the majority of settlements and killing over 300 people. In the wake of this catastrophe, the Government of Nepal, with the assistance of technical experts from various international development agencies, designed and implemented a household-level damage inspection in order to determine household eligibility for funding to support recovery activities. Using interview and participant observation data we show how the inspection process, called The Nepal Earthquake Housing Reconstruction Damage Assessment created a particular picture of what took place during the disaster and the causes of vulnerability that both legitimated and enabled an approach to recovery underpinned by the bureaucratic rationalities of the state. The assessment also worked to obscure other narratives of the disaster, including the lived experiences of survivors, and other possible visions of recovery. We explore how interventionist research tactics, like participatory mapping, oral history, and community photography can serve to illuminate facets of past events that official statistics would render invisible. This move allows us to more fully assess what is left out of the Government damage assessment as well as to explore what kinds of information infrastructures might support disaster affected communities in narrating and realizing their own recoveries. This work contributes to active conversations at the intersection of participatory knowledge practices, ethnographies of disaster, and science & technology studies.

Communities as Controversies in Constant Resolution Ammar Halabi, University of Fribourg; Basile Zimmermann, University of Geneva

Communities are constantly in the process of making. To keep their collective together, members work to strengthen relationships, maintain interest, provide resources, deal with internal infractions or external pressures, and often give their collective a name to announce it to the world. In other words, communities are the product of crafting consensus out of the diverging interests and the dissensus of many - they are controversies in constant resolution. By working with communities, scholars of Community Informatics (CI) often engage actively with communal relationships, usually with a mandate to critically contribute to community growth and empowerment. The work of CI is then seldom free of tension, where introducing technology is an interest-laden activity, privileging certain imageries and interests. In this paper, we discuss how STS approaches to understanding the making of technology, especially their sensitivity to controversy and material politics, provide a constellation of concepts, tools and sensibilities for CI to engage reflexively in its work with communities. Using field research on a local community in Damascus in 2011-2017, we also discuss how CIs repertoire of practical engagements provides an answer to the inquiry of how STS can engage actively in inducing change, primarily by focusing on contexts at the bottom of the pyramid.

Reconsidering Community TV: The Transformation of Public Knowledge and Production Spaces in San Francisco Matt Dewey, University of California, San Diego

Community video and television production initiatives have addressed such issues as the ‘digital divide’, citizen journalism, and their potential for alternative forms of vocational training. However little research has considered the ways in which the types of deliberative spaces that these projects co-create combine with and influence the broader communicative potentials of community media production. Scholarship on citizen science, affect in material infrastructures, and the social construction of activity settings have all suggested the necessity of investigating this communicative potential - the ways the public interact and communicate with each other, with communication technologies, and with professionals to co-produce knowledge and practice. While much work has been done on the ways in which citizens groups have utilized online technologies to collect, circulate and design technological and scientific knowledge challenging the deficit model of scientific knowledge used to educate the public, and the critical- interpretative model that simply enriches professional expertise, their focus tends to center on the technology as a mediation tool rather than on how co-production extends to physical space and its relationship to the process of community knowledge formation. This paper looks at how the transformation of public access television in San Francisco, its relocation and technical retouching of community production practices since the late 1990s, intersect prevailing ideas about citizen multi-media production as a legitimate source of local information and programming.

Refugee & Forced Migration Informatics Amirah Majid, University of Washington

Historically the disciplines which informed the area of research variously referred to as ‘Refugee Studies’, ‘Forced Migration Studies,’ or some combination of those terms, has been political science, policy studies, and anthropology. In the early 1980’s research gathered primarily around the study of international aid organizations. Today, refugee and forced migration studies has grown dramatically and is seen as a legitimate, interdisciplinary field of study; despite continuing quarrels about naming convention. Perhaps not surprisingly the field is still driven by studies of policy, legal implementation, and practicalities associated with large population movements. In technology studies the most commonly applied identifier for research involving refugees and technology is ‘refugee information systems’ which is strongly identified with a design focus. That this is a problem of critical, global importance is not a question.
In the areas of STS and HCI research there has yet to be a common effort to bring together refugee-related studies within an understanding of the broader disciplinary context. I propose that STS and HCI scholars approach working with and researching refugee from a perspective shaped by post-colonial and critical approaches informed by a broad multi-disciplinary history. I term this new area of research Refugee & Forced Migration Informatics because “informatics is based on the recognition that the design of technology is not solely a technical matter, but must focus on the relationship between the technology and its use in real-world settings” (Dourish, 2008). My areas of research include cross-cultural computing, ethnic conflict, and social computing.

Chairs:
Colin Rhinesmith, Simmons College
David Nemer, University Of Kentucky

172. “NSF speed dating” with STS Program Director Fred Kronz
Special Event
10:00 to 12:00 pm
Sheraton Boston: Floor 3 - 3rd Floor Registration
NSF STS Program Director Fred Kronz will be on hand to listen to STSers pitch their research proposal ideas and provide direct feedback. Look for a sign-up sheet at a table near Registration to reserve a 15-minute spot.

Break
10:30 to 11:00 am
Sheraton Boston: Foyer

174. Racism and Health II
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon A
Both racism and health are in/sensible: elusive to define and measure, and yet urgent and palpable. What can scholars in science and technology studies contribute to understanding how racism and health intersect in science and in society? This open panel welcomes a broad range of approaches to this question. Papers might explore how social inequality becomes materially embodied; how scientists and social justice advocates mobilize data about the impact of racism for antiracist projects; the future of identity politics for health in shifting political landscapes in specific countries and transnationally; the epistemological practices of biological and social sciences that make truth claims about racism and health; the role of pharmaceuticals, diagnostics, and other technologies in ameliorating/exacerbating inequality; the ways that pseudo/scientific racial narratives operate within and beyond scientific spheres; and much more. This open panel invites papers that make empirical and theoretical contributions to the intersectional, interdisciplinary viewpoints of how racism (not just race) alters modes of technoscience, knowledge production, and governance around health. It seeks to generate new networks and conversations among STS scholars to interrogate these vital questions.

Participants:
Using a Structural Competency Framework to Teach Structural Racism in Pre-Health Education Jonathan Metzl, Vanderbilt MHS
Racial disparities in health and healthcare are increasingly shown to reflect biases embedded in the U.S. healthcare system. This paper contributes to a growing body of literature that posits structural competency as a conceptual framework for bridging the gap between individual and institutional bias, or between what racism in medicine is and what it does. Structural competency calls on healthcare providers and students to recognize how institutions, markets, or healthcare delivery systems shape symptom presentations and to mobilize for correction of health and wealth inequalities in society. To date, most structural competency interventions have targeted healthcare providers and medical students. Yet the inclusion of structural competency training in pre-health undergraduate programs may offer significant benefits to future healthcare professionals. This paper presents the results of a comparative study of an interdisciplinary pre-health curriculum based in structural competency with a traditional premedical curriculum. The author describes a new evaluation tool, the Structural Foundations of Health Survey (2016), developed to evaluate structural skills and sensibilities. The author uses the survey to evaluate two groups of graduating seniors at Vanderbilt University—majors in an interdisciplinary pre-health curriculum titled Medicine, Health, and Society (MHS), and premed science majors—as well as first-semester freshmen, with particular attention to understanding how structural factors shape health. Results suggest that MHS majors identified and analyzed relationships between structural factors and health outcomes and structural racism at higher rates and in deeper ways than did premed science majors and freshmen, and also demonstrated higher understanding of structural and implicit racism and health disparities. The skills that MHS students exhibited represent proficiencies increasingly stressed by the MCAT, the AAMC, and other educational bodies that emphasize how contextual factors shape expressions of health and illness.

Making Limits to the Body: The Production of Somatic Differences to Grant Access to Healthcare Jorge Castillo-Sepulveda, University of Santiago de Chile
In recent years we have appreciated several reforms in health systems in Latin American countries, oriented by World Bank and other transnational organizations. In the case of Chile, this reform have acquired the figure of a regime of guarantees for a cumulus of health problems that have been prioritised articulating evidence-based medicine, among a meshwork of other epidemiological, economical, social and political criteria. Such regime entails a series of implications for the performance of biological processes. First, it elaborates a series of technologies that affect the meaning -trajectory- of the diseases inscribed in the system. Second, it proposes a biopolitical order based on the criteria set forth, formulating a system of inclusion-exclusion based on socio-technical practices. Third, derived from the above and as more important aspect, the regime enacts a temporality and a somatic configuration that defines which bodies participate of the regime, being part of its benefits. That is to say, the regime constitutes a complex interweave that redefines biological priorities that are economically guaranteed, creating two temporary systems distinguished by the enactment of prioritised bodies and their functions. We problematise and conceptualise the above from a socio-technical perspective based on the notion of somatocracy, elaborated by Michel Foucault. STS provide the possibility to give account of how this regime constitutes a new modality of government which translates the body as a physiology or a set of prioritised organs. Somatocracy is a somatic racism in different scales, of the population biology and the interiority of the body.

Reframing Risk, Health, and Security: Nurses Challenge the National Smallpox Vaccination Program of 2002 Given D’Arcangelis, Skidmore College
This paper explores the way that critical actors can re-work hegemonic scientific knowledge for liberatory ends. This paper uses discourse analysis and a transnational feminist lens to unpack the stance critical nurse organizations took against the Bush Administration’s Smallpox Vaccination Program in 2002. Nurses were at the forefront of articulating a counter-hegemonic discourse that criticized the NSVP as an exploitative program that engendered health risks to themselves and their patients, and as part of the ideological apparatus put in place to justify unprovoked invasion of Iraq. The paper’s methods primarily entail the examination of nurse organization’s rhetorical strategies in their newsletters and other formal publications in response to the Program. The paper highlights nurses’ tactical deployment of scientific data on vaccine risks and anti-imperialist arguments as the primary dimensions of their critiques. The paper demonstrates that nurses’ critique of the Program revealed it as placing undue risk on marginalized nurses
Furthering The Case for Black Disability Studies as Praxis

“Furthering The Case for Black Disability Studies as Praxis” addresses the challenge posed to African American and Black Studies scholars when attempting to discuss, embrace, and engage disability and disability studies. This paper argues that Black communities have carried the burden of being racialized non-normative bodies, and as such, have faced challenges specific to the intersection of race and disability. African American, Black, and African Diasporic studies (AABADS) scholars have long been engaged in conversations regarding the body and disability, however, such investigations have neither been named, nor claimed as work related to and in dialogue with disability studies. Historically, AABADS scholars have addressed the violence of slavery, lynching, the misuse of Black bodies in medical experiments, and the disciplining of laboring Black bodies, but has done so without making explicit links to disability studies scholarship and theoretical interventions. This article explores the ways in which ableism has historically worked and failed to mitigate racialized oppression in African American lives. The article answers the questions: what work would acknowledging disability within African American studies do? We outline the methodologies and critical perspectives of a new field, Black disability studies. Black disability studies builds on Black feminist epistemologies, particularly calls for intersectional approaches that consider race, gender, class, and sexuality. Black disability studies is both a theoretical and activist project and we explore our own complicity and resistance to an ableists understanding of Blackness as a way to embody a commitment to exploring embodiment has informed African American and Black Studies, while also examining the ways in which ableism has crept into the field to obscure a broad range of bodily experiences, understandings, and histories. We want to situate disability, blackness, and stigma with one another in such a way that we build on previous efforts to understand the complex ways in which ableism and cultural expectations for the body in Black cultures impacts how we might frame the question: “what is disability” (Danhamm et al.)? We are quite aware of the erasure of raced bodies—specifically Black bodies—with mainstream Disability Studies. For this reason, we believe it is imperative to further the development of Black Disability Studies—an intersectional theoretical approach to the bodily experiences of raced bodies that utilizes varied methodologies to more comprehensively consider and construct the role of disability and notions of the “normative” body in the lives, labors, and experiences of Black people. We are not simply calling for a theoretical intervention by furthering the work at an intersection that many have worked in before us. We are claiming Black Disability Studies as praxis, one that requires us as authors in the academy to reexamine our means of production and labor in a profession profoundly shaped by institutional racism and ableism.

Participants:

**Visualizing Climate Change: On the Role of the Visual in National Geographic’s Climate Change Discourse. Dorothea Born, University of Vienna**

Climate change is one of the biggest challenges for humanity in the 21st century. The visual plays an important role in communicating this highly controversial issue, since it helps to localize and personalize this remote and global issue. Yet, images are also open for multiple interpretations. Building on critical multimodal discourse analysis, I will investigate the role of the visual within the climate change discourse of the popular science magazine National Geographic. I thereby focus on how different and shifting discursive tropes have been used to visualize (un-)certainty and to (de-)naturalize climate change by drawing on different conceptualizations and delineations of nature and society. I will thus historically trace the work taken to establish climate change as an unquestioned ‘fact’ within National Geographic and highlight the role of the visual to create evidence for it. Popular science magazines hold an important position in science communication. Located between specialized scientific journals and the mass media, they select, synthesize and recontextualize scientific knowledge, thereby forming a distinct literary genre through which scientific knowledge is communicated to a highly specialized audience. Within this form and format of science communication, the visual plays an important but often neglected role. This paper thus highlights the specificities of (visual) climate change communication within the specific format of a popular science magazine.

**Visual (In)sensibilities: Representation of Human Evolution in Mexican Visual Culture. Erica Torrens, Universidad Nacional Autonoma de Mexico; Ana Barahona, UNAM**

Since the theme of the conference is STS (In) Sensibilities, what the authors will present is both a work in progress and a call for action. Mexico is used to a terrible practice of making those marginalized invisible and inequality a natural thing. This naturalization of inequality has been provoked by many crucial and diverse factors, of which we want to focus on popular culture from a STS perspective. In Mexico, the issue of race and stereotyping strikes us as to the core. Many scientific images currently in use to teach biology to Mexican children, deny their identity. They are charged with ideological content that apparently has not been revised in while. Thus, it is pertinent and crucial to study from the history of biology, some of the problems of basic education in Mexico, particularly regarding the pictorial representation of evolutionary theory in pedagogical
Theater of Operations: Asymptote Architecture New York

The Image of Intersubjectivity: The Tacoma Narrows Bridge, become apparent. This paper continues the important of work of function adequately, social and technological entanglements failure, and the failure to understand and communicate its economic efficiency but also one of social connection. In its objectivity (and failures thereof) and intersubjectivity. By collapse, the footage of the disaster, and the spread of images and modes of objective practice to form or be put to use. I examine connectivity, due to failed objective practices, enable other universal truths are constructed that are stronger and more anxiety towards failures, technological and objective. Subsequent and technology studies, film studies, and ethnographic studies of unifying than those that preceded them. Drawing from science and practices (bridge aerodynamics engineering, theorizations of negative damping, video forensics, and infrastructure report cards). The bridge, as a metaphor for intersubjectivity, reveals an anxiety towards failures, technological and objective. Subsequent modes of objectivity are used to replace those that failed; new universal truths are constructed that are stronger and more unifying than those that preceded them. Drawing from science and technology studies, film studies, and ethnographic studies of infrastructure, I argue that disruptions to maintain social connectivity, due to failed objective practices, enable other modes of objective practice to form or be put to use. I examine the details of what caused the Tacoma Narrows Bridge to collapse, the footage of the disaster, and the spread of images and knowledge about the collapse to elucidate a relationship between objectivity (and failures thereof) and intersubjectivity. By restraining the self, objective practices promote relationships with the Other. The suspension bridge is a symbol of modern economic efficiency but also one of social connection. In its failure, and the failure to understand and communicate its function adequately, social and technological entanglements become apparent. This paper continues the important work of Daston and Galison on objectivity to theorize intersubjectivity as an epistemic virtue closely related to objectivity. The Tacoma Narrows Bridge, then, becomes a useful site to bring together scientific, filmic, and ethnographic perspectives on intersubjective-objectivity. I conclude that the anxiety of technological failure maps onto an anxiety towards objectivity, and the need for shared intersubjective experience.

Theater of Operations: Asymptote Architecture New York

In 1997, the New York Stock Exchange commissioned Asymptote Architecture to create a virtual trading floor. The project was the first business application of an interactive virtual architecture, and allowed the NYSE’s operations team to manage, monitor, and intervene on the flow of data and information running through the physical trading environments of the stock exchange. The project was not merely a representation or virtual replica of the physical trading floor of the NYSE, but a three-dimensional, fully-navigational, and operational virtual space depicting real-time changes and, triggering, on the part of the operations team, corrective or preemptive interventions on general trading patterns and specific stocks. Moreover, the virtual trading floor was accompanied by another, complementary project: The Advanced Trading Floor, a steel-and-glass clad physical command center with monitors displaying the virtual environment. The paper I am proposing investigates the intersecting managerial, architectural, materials, to ultimately promote and contribute to the revision of plans and programs of natural sciences teaching. This paper explores the influence of European and other western reconstructions of human past in the iconography of evolution in Mexican popular visual culture (specifically in textbooks – which are free and Universal in Mexico- monographs -which are one of the most used educational resources in this country- and murals in public buildings). Its aim is to research for the first time, into the role of images in the production of identities and the kind of discourses and narratives Mexican children are encountering in their educational materials regarding the topic of human evolution.

The Image of Intersubjectivity: The Tacoma Narrows Bridge, Objectivity, and Infrastructure Failures Travis Hnidan, York University

Building from Daston and Galison’s formulation of objectivity as an epistemic virtue produced through restraint of the self, this paper examines the impact of the Tacoma Narrows Bridge collapse footage. How does this visually sensible disaster interact with and communicate through the concepts of objectivity and intersubjectivity? I argue that technological failures (the Tacoma Narrows Bridge collapse, film conversion infidelity and dissemination of collapse footage, pedagogy of the physical principles causing its collapse, and modern infrastructure failures more broadly) facilitate the development of emergent objective practices (bridge aerodynamics engineering, theorizations of negative damping, video forensics, and infrastructure report cards). The bridge, as a metaphor for intersubjectivity, reveals an anxiety towards failures, technological and objective. Subsequent modes of objectivity are used to replace those that failed; new universal truths are constructed that are stronger and more unifying than those that preceded them. Drawing from science and technology studies, film studies, and ethnographic studies of infrastructure, I argue that disruptions to maintain social connectivity, due to failed objective practices, enable other modes of objective practice to form or be put to use. I examine the details of what caused the Tacoma Narrows Bridge to collapse, the footage of the disaster, and the spread of images and knowledge about the collapse to elucidate a relationship between objectivity (and failures thereof) and intersubjectivity. By restraining the self, objective practices promote relationships with the Other. The suspension bridge is a symbol of modern economic efficiency but also one of social connection. In its failure, and the failure to understand and communicate its function adequately, social and technological entanglements become apparent. This paper continues the important work of Daston and Galison on objectivity to theorize intersubjectivity as an epistemic virtue closely related to objectivity. The Tacoma Narrows Bridge, then, becomes a useful site to bring together scientific, filmic, and ethnographic perspectives on intersubjective-objectivity. I conclude that the anxiety of technological failure maps onto an anxiety towards objectivity, and the need for shared intersubjective experience.

Empirical Prints as Dramatic Images Kasper Ostrowski, Aarhus University

“What happens when we slow down the process of printmaking to a hairdryer?” EP participant The simple, handheld process of turning reclaimed objects into prints, recast or reenact the empirical materials in such a way that the natural become de-naturalized - compelling both an empirical pre-printing gaze and a post-printing aesthetic view. The handheld prints work as strong, aesthetically surprising and at times humorous reenactments of empirical materials - being both quite curious and ontologically complex. With this instrument reclaimed objects can be turned into images of inquiry, making us reconsider the naturalness of the natural and exploring the potential of art in and of the mundane. In this paper I outline how images are created with a handheld and mobile printing technique (a live participatory, hands-on presentation will hopefully be available in the Making and Doing session). I explore the process as a dramatic exchange between ink, objects and pressure, while developing an argument about the mobile printing press as a contrapuntal inscription devise or an open black box, which simultaneously blurs and displays the connection between input and output.

Regula Valérie Burri, HCU - HafenCity University Hamburg

Chair: 176. Embodying the Ends of War

Traditional (Closed) Panel

11:00 to 12:30 pm

Sheraton Boston: Floor 3 - Beacon D

War is a site of destructive force, but also of generative embodiment. Modern war’s effects on bodies and psyches has been central to the construction of military practices and of war itself as more or less reasoned, humane, or moral. The knowledge and techniques used to heal, preserve, and enhance military bodies and minds achieve both the weaponization of human life and the “moral renovation” of politically dubious conflicts (Keegan 1994; Lutz and Millar 2012). Jennifer Terry (2009) characterizes this intersection as the “mutual provocation” of politics, technology, and bodies, and suggests that the “signature injuries” associated with specific conflicts—from the horrors of World War I gas attacks to pervasive iatrogenesis of survivable contemporary traumatic brain injuries—bespeak the technologically embodied interrelationship of geopolitics and biopolitics. This panel interrogates how material objects, living things, and socio-technical systems are developed as the media of organized violence that shape, sustain, and destroy bodies. The papers address: the humane ‘embodiment’ of rifles and ammunition, the most conventional of weapons; the post-war landscape of risky self-endangering ex-military bodies; the development of military psychometrics as a tool of excision and inclusion; and the enlistment of soldiers into data-driven research to quantify, manage, and intervene in the relationship between war and health. Across this range of vantage points, we ask how the ends of war (functional or ethical) become justifiable through the bodies that are operationalized in the formation of destructive force.

Participants:

Wounds of War: Infantry Rifles and the Embodiment of Lethal Force Nisha Shah, School of Political Studies, University of Ottawa

Observations from Crimean and US Civil Wars remarked that
new and more ‘disastrous’ wounds were marking the battlefield.

The response for the birth of new field surgery techniques,
especially around trauma care and triage. Less well considered
has been the development of wound ballistics, the study of the
effects of weaponry on the body. Important for medical surgeons
wishing to enhance treatment, equal effort was directed to
devising experiments to test and maximize the ‘stopping power’
of weaponry against enemy forces. Focussing on early
experimental testing around the introduction of infantry rifles
and, specifically, its the rapid development of conical bullets, I
explore how wound ballistics research legitimated specific kinds
of lethal force in warfare that became embodied by the infantry
rifle. Drawing on the work of Karen Barad I describe rifles and
their bullets as objects that calibrate not just when but how,
crossing the line from life to death is possible and permissible, a
‘convention’ of modern war. Transforming wounds from medical
specimens into the materiel of war, I situate wound ballistics
research as ‘martial tactic’, in which bodies and bullets become a
material and moral infrastructure through which certain weapons,
disastrous though they may be, become desirable.

From Eugenics to Resilience: War, Psychometry, and the
Politics of Inclusion Alison Howell, Rutgers University
Newark

This paper sounds an alarm concerning the potential effects of
present-day attempts to establish a psychological science of
‘resilience’ through the collaboration of academic psychologists
and the US Army. It reveals the history of psychological
resilience science in two older forms of race science: eugenic
WWI intelligence testing and ‘learned helplessness’, which
formed the basis of both the War on Poverty and the Bush
Administration’s torture techniques. Far from shedding the
racism of its roots, it is argued that resilience science is forging
novel constellations of racism and ableism. These seek to
improve the fitness of populations less by excising or segregating
‘abnormals’ than by radically reconfiguring notions of normalcy
so as to demand that soldiers and civilians be enhanced, resilient,
and made ‘socially fit’ for war. It emphasizes the inclusion of
racialized soldiers, but considers them fodder for training the
broader populations of soldiers in cross-cultural competency such
that they can effectively conduct wars of occupation. To analyze
this, the paper proposes the concept of martial politics, which,
unlike the concept of militarization, can capture the continuities
in war-like configurations of race and science in social and
geopolitical spaces alike.

Wounds and Assets: Big Data and Epidemiological Fact-
Making in U.S. Military Health Research Emily Sogn, New
School for Social Research

The dynamic relationship between war and scientific research
has frequently been the object of critical analysis. Jennifer Terry
(2016), for example, has observed that one of war’s products is
“a steady stream of wounded veterans who become research
subjects.” Increasingly, scientific scrutiny of military populations
involves not only investigating particular forms of war-related
injury and healing, but also the conditions that preclude or
mitigate the risk of harm over time. This paper explores U.S.
Army members’ enlistment in new data-driven research
technologies aimed at measuring the role of psychosocial
“assets” in determining long-term health outcomes. Examined
alongside the Army’s broader embrace of “positive health” as an
indicator of the strength and efficacy of the fighting force, I
argue that these collaborations with non-governmental entities
produce novel forms of epidemiological fact-making that
reconfigure the scale and logic by which war’s myriad harms are
visualized in and beyond military institutions.

On the Road in the Afterwar Kenneth MacLeish, Center for
Medicine, Health and Society, Vanderbilt University

Derek Gregory (2015) has observed that landscape is not merely
a setting or obstacle for the practice of warfare, but the medium
through which its ends are carried out and embodied. The
material and natural features of the Western Front, the Mekong
Delta, the Tigris-Euphrates Basin, or the mountains of
Afghanistan are central to the ways that the people touched by
war in those places die or live painfully on in the aftermath of
violence. This paper makes a case for the importance of
domestic, homefront landscapes—in this case, in a military
community in the southeastern US—for the continued unfolding
of war’s effects, the state of embodied and psychic precarity that
Zoe Wool (2015) terms the aftermath. It examines the framing of
drunk and reckless driving among military veterans as a sign of
their sympathetic, war-related psychological suffering and as
antisocial behavior that needs to be surveilled, policed, and
punished. I argue that taken-for-granted features of military life
and the landscape and design of most military communities come
together to constitute the drunk driving soldier or veteran as an
almost inevitable expression of post-war pathology but also as an
urgent site of care and therapeutic intervention. Drawing on
ethnographic fieldwork in a specialized court that works with
military veteran drunk-driving offenders, the paper examines the
everyday bureaucratic and therapeutic practices that constitute
dangerous veterans on the road as subjects of automobility,
psychiatric diagnosis, self-improvement, surveillance, and law
enforcement as they traverse the (literal) landscape of post-war
life.

Chair: Kenneth MacLeish, Center for Medicine, Health and Society,
Vanderbilt University

177. Synthetic Actors I:_Drones and Robots as Synthetic Actors

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon E

In particular situations or social settings, humans begin to encounter
drones, robots, and even software algorithms as interaction partners. That
is, they are being experienced, treated, or addressed as actors by everyday
participants, of e.g., stock markets, robotics development labs, or UAV test
facilities. This open session will be dedicated to theorizing empirical
phenomena of this type. We do not intend to theoretically declare all
material entities to be potential actors, or to frame all social conduct to be
ennamed into ‘ontologically flat’ actor-networks; such a move would
render the particularity of these cases invisible. Instead, we aim to
investigate synthetic situations (Knorr Cetina 2009) in which either screens
or robotics afford the response presence of not only human interaction
partners, but also software or machines. Actorship and the experience of
being-in-interaction are thus tied to the situation, and are structured by its
organization, temporality, and regime of attention. We call for empirical
and theoretical papers investigating the forms, effects, structures, or
problems of mediated, robotic, or synthetic situations that afford interaction
or synthetic actors.

Participants:

Players, Not Users: Theorizing Synthetic Actors in eSports
Niklas Woermann, University of Southern Denmark

If we are to understand, criticize, regulate, or engineer human
interaction with robots or algorithms, we require theoretical
notions of interaction and actorship that are neither so broad that
almost any material entity – such as speed bumps (Latour 1999)
– can fall under it, nor so narrow that all technological devices
are excluded from view. This contribution will work towards
adequate notions by examining an empirical setting that is clearly
action-packed, but in which it is not clear at first sight who
should count as an actor, and for whom: eSports. In contrast to
the frequently studied users of technology, gamers not only use
computers, they play with and against them. While
professionalized competitive gaming works as a popular
spectator sport in part because it produces and presents skillful
star players, all in-game action occurs in arenas necessarily
populated by computer-controlled units. Based on a 4 year
ethnographic study of eSports practices, I argue that a suitable
theoretical notion should require participants to experience
interaction as taking place in situ, as a prerequisite for
foundational phenomena such as response presence (Goffman
1983) or accountability (Garfinkel 1968). This, in turn,

presupposes the more basic embodied experience of Being-in-
Action, which in the case of eSports emerges only on the basis of a fine-tuned technological assemblage. Only particular types of situations, one can conclude, afford the en-coded experience of interacting with technological actors, not the least because said situations must simultaneously afford experiencing Being-in-Action. The case of eSports reveals the complexity of this dual affordance structure, which is by no means equal to the material or technological gaming practices. Crucially, some of the perceptible processes run by computers are routinely registered by gamers as part of their own actions, some as moves of a computer-controlled opponent, and some not at all. In conclusion, I propose that interaction with synthetic actors can only occur within what has been called synthetic situations (Knorr Cetina 2009) and is thus framed and prefigured by the structural properties of such situations, rather than being solemnly determined by the actors involved.

Making Multitasking Matter: Using Object-Oriented Ontology to Human-Drone Systems Brandon Kramer

The growth of digital technologies has given rise to conflicting discourses about the relevance of multitasking in our daily lives. On the one hand, cognitive scientists argue that multitasking significantly diminishes the processing speeds of human brains when compared to behaviors enacted along the linear logics of industrial capitalism. However, organizational scientists now argue that multitasking can make companies run more efficiently because workers have the flexibility to respond quickly to global networks of synchronized action (like during high-speed stock-market trading). Using concepts from object-oriented ontology, enactive cognitive science and Knorr-Cetina’s work on global microstructures, I conduct a content analysis of multitasking in videos of human-drone cockpits used by military personnel. I find that cognitive scientists’ omission of technologies as potential actants in their analyses may underestimate the implications of multitasking behaviors. Rather than multitasking existing solely through human action, “tasks” are actually materialized into the apparatus that drone operators use, becoming a withdrawn component that scientists fail to codify. I argue that the mechanization of these tasks requires human drone pilots to take on more and more responsibilities in cockpits, depleting the cognitive capacities to make decisions of life and death during military operations. The cognitive load that pilots may experience, coupled with the alienation of carrying out drone missions that are both remote and potentially deadly, creates new forms of subjectivities between military personnel and the ‘others’ that they are tasked to monitor and sometimes kill while operating drones.

Environments in Composition: On the Synthetic Situation of Drone Piloting Marcel LaFlamme, Rice University

Unmanned aircraft, or drones, decouple the project of control from the condition of physical copresence. In so doing, they elicit new forms of skill that consist in the coordination of perception and action across a mediated, discontinuous environment. Drawing on ethnographic research with trainees at two unmanned pilot training programs in the state of North Dakota, I show how the composition of this environment for skilled practice is an ongoing achievement. Trainees learn to perceive and act at the level of the ground control station, the aircraft in the sky, and the target on the ground, cinching these settings together from moment to moment even as they threaten to fall out of alignment. Their taskspace is, in the words of Karin Knorr Cetina, “always in the process of being assembled.” In this paper, I argue that being-in-interaction with a drone demands the application of knowledge about its systems and flight logics to a specific three-dimensional volume of airspace and set of mission requirements. As an interaction partner, the drone is marked by an insensibility toward environmental constraints that are underspecified in its programming and design. Drone piloting therefore entails a process of sensibilization, whereby the pilot becomes attuned to both human and machine sensoria in order to manage the dynamics of an asymmetrical interaction order.

Making Surgical Robotic Tools into Sensible Interaction Partners Neil Stephens, Brunel University London

The history, present, and anticipated future of robotic surgical tools is one of facilitating interactions between patient, surgeon and robot. For teams developing robotic surgical tools this has involved negotiating relationships of autonomy between the three. Some early systems prevented any surgeon/robot interaction during the procedure. Current commercially dominant robots employ a ‘master and slave’ format in which the surgeon controls every aspect of the robots activity. Surgical robots currently under development increasingly involve autonomous functions to be performed in concert with the surgeon, be that visualising and planning incision trajectories based on sensing or scan data, or robots actively conducting surgical procedures and making pre-planned or in situ decisions on how the procedure should be conducted. This paper reports (i) ethnographic fieldwork conducted in a laboratory that has developed an autonomous surgical robot that is undergoing testing in humans and pigs and (ii) an interview study of robotic surgical tool developers in the UK. It documents the imagined and experienced modes of being-in-interaction in robotic surgical tool development, and frames them within broader imaginaries and practicalities of the economic and legal context of robotic surgery. It argues for the role of STS in understanding how the type 3 synthetic situation of scopically augmented surgery – in which visualisation technologies make the inner workings of the body visible to the surgeon (Knorr Cetina 2009) – becomes further complicated by surgical robot autonomy and the modes of interaction inscribed into these synthetic actors.

Chair: Niklas Woermann, University of Southern Denmark
Discussant: Karin Knorr Cetina, University of Chicago

178. Interspecies Sensibilities II

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon F

This is a panel for those engaged in sense-making activities with, for, and across multiple species. We welcome papers that address the creative design, skills development, and research opportunities of such work as well as the myriad reasons that social scientists might choose to do it. We especially welcome papers that draw on ethnographic, historical or other humanistic methods to talk about zoos, fields, labs, etc., as critical sites of inquiry, facilitating a rich, transdisciplinary discussion of interspecies research sensibilities.

Participants:

Material Science: A Comparison Across Three Scientific Sites Jennifer Lai, Michigan State University

Science is a social activity, and thus tends to reflect social (that is, power-based) inequalities. These inequalities occur not only between human scientists, but also between scientists and nonhuman actors. Thus to not acknowledge the full extent nonhuman actors, or materialities, influence daily scientific conduct limits our understanding not only of how scientific knowledge is produced, but also how the scientific field chooses which problems to investigate, and how social inequalities are reproduced within the process. Conversely, acknowledging the role of the material in scientific work greatly expands the range of problems accessible to scientific research, and thus has important implications for what are considered priority issues in health and the environment. Although scholars of laboratory studies have already found that scientific work is contingent on scientists’ relations with nonhuman “things,” these findings have yet to be integrated with political ecology, which has likewise been fruitful in conceptualizing hybrid relationships to better understand our socioecological co-constitution with material reality. As such, to capture empirically and make explicit the extent to which materiality influences scientific knowledge, and to track the process by which social inequalities between human and nonhuman actors are reproduced within the course of ‘doing science,’ I use a political ecological approach to look at the
scientific treatment of waterborne microorganisms at three different scientific sites: a medical school, a veterinary school, and a research site “in the field.” Preliminary findings from ethnographic fieldnotes and in-depth interviews suggest that contingencies involving the material translate into embodied scientific knowledge.

Re-Enacting Immunity in Microbiome Science: Tensions between Old Paradigms of Exclusion and A New Postgenomic Biosociality Andrea Nunez Casal, Goldsmiths, University of London

Microbiome science challenges the tenet of a fixed and self-contained human body by recognising the role of microbes along with environmental and lifestyle factors in the shaping of the immune function. Whereas defence, survival and competition seem to be traces of an bio-onto-epistemological past, cooperation, co-evolution and plasticity are now reinstated biological categories. Does that mean that the scientific and cultural material-semiotic paradigm of immunity-as-defence (Cohen, 2009) is obsolete? My argument is that microbiome science breaks binaries between the old conception of immunity and a new biosocial perspective of postgenomic science. Furthermore, it brings the environment and particular conceptions of social determinants of health into processes of medicalisation and optimisation. I contend that such life-managing processes are implicated in the current individualisation of the body and personalisation of medicine. This raises critical questions for social scientists and humanities scholars regarding its wider social implications, particularly in relation to a re-qualified immune-logic of inclusion and exclusion. Using genealogical and ethnographic methods as primary research tools, and analytical frameworks from body studies, science studies and medical anthropology, this paper examines the material and conceptual conditions that are making possible an ambivalent displacement from a molecular and standardised biomedical approach based on biological similarity (same DNA) to an ecological and individualised approach to immunity based on difference (multispecies entanglements), considering not just the theoretical and empirical underpinnings of such a relational approach but also its social implications in the context of emergent (bio)inequalities at the threshold of transnational scientific interests and efforts.

The Human Virome: Trans-speciesism Beyond the Microbiome
Melanie Armstrong, Western State Colorado University

Evidence abounds that people are embracing their microbiomes: they eat probiotic yogurt, read books titled "Eat Dirt," and splash sprays. Public and private research organizations are funding studies to explore how the microorganisms in our bodies might be manipulated to our individual and collective benefit. The management and manipulation of microbes in public health systems and vaccination programs manifests deep-seated beliefs about nature as subject to human control. New knowledge of viruses transforms microbes from passive digesters and immunity boosters into manipulators of life which act invisibly, beyond the reach of the management systems we’ve established to control them. It also binds humans to the unintended consequences of microbial control, including the eradication of viral species like smallpox. Not only does this challenge foundational beliefs in the human ability to control external nature, but it shifts conversations about microbiomes away from a background system maintaining human life, to an active but unseen system of viruses acting independently to produce the world in which we live. What new ways of living in a transspecies world does this genomic human-virus hybrid (and its virally produced environments) make possible?

A Game Changer for the Animals: Why Effective Altruists Love Cultured Meat
Garrett M Broad, Fordham University

Effective altruism (EA) is a conceptual approach and emerging social movement that aims to “do the most possible good in the world,” using a data-driven approach to direct intellectual and charitable resources toward high-impact philanthropy. Priority cause areas for effective altruists (EAs) include addressing global poverty, existential risks to humanity, and animal welfare. Indeed, a significant subset of the movement argues that ending animal factory farming offers one of the best possible pathways to reduce global suffering. Many EAs are particularly energized by scientific innovation in cellular agriculture and clean meat, which they insist will offer an unmatched opportunity to be the “game changer” that could eliminate farmed animal suffering once and for all. This paper explores the implications of EA’s engagement in cellular agricultural and clean meat advocacy, examining their role within the broader politics of food system and animal protection knowledge. As EAs and EA-aligned organizations have stepped up as key financial supporters of cellular agriculture, the movement’s technological and fiscal prowess has already shaken up the existing animal protection and vegan advocacy landscape. In the years ahead, EAs have the potential to substantially influence the market for animal foods and reshape cultural conceptions of what it means to be an animal advocate. At the same time, however, if they overstate the inevitability of consumer acceptance and alienate allies across the animal protection movement, EA’s technologically deterministic tendencies could prove a barrier to achieving their fundamental goals.

Animal Obsolescence and The Multispecies Ethics of Cellular Agriculture
Elan L Abrell, Harvard Law School

As the outgrowth of an assemblage of scientists, environmental and animal welfare activists, venture capital investors, and start-up tech firms all seeking to develop biotechnological processes for affordably producing animal products without animals, cellular agriculture (CA) has the potential to entirely remove nonhuman animals from the agricultural production chain. As such it may herald a radical transformation of animal-based industries with especially far reaching consequences for human-animal interactions in agricultural contexts. Although CA techniques could help to ameliorate a range of crises facing the planet, it also raises important questions about the cultural, ethical, and ontological implications of rendering agricultural animals obsolete. Haraway, for example, argues that vegan efforts to avoid “eating or wearing any animal products would consign most domestic animals to the status of curated heritage collections or to just plain extermination as kinds and as individuals” (2008: 80). Although this outcome is debatable, it
Chair: Christena Nippert-Eng, Indiana University

179. Science out of Comfort: Ethics as an Act of Violence

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon G

Discomfort, disturbance, disharmony and disgust tend to provoke traditional science and research, bringing about questions of truth in relation to what is to be seen as emotional contamination of results and knowledge production. But what if uncomfortableness is the deal breaker for training our sensibilities and judgement as an important compass of care and ethics? What if the disharmony is an important act of violence when performed on norms and discourses of hegemonic power? Aligned with the theme Science out of Comfort, we would like this panel to offer a track of contributions that explore how alternative forms of knowledge production can support new critical sensibilities in which disturbances and uncomfortable affects and emotions are used in order to slow down and make room for critical reflection and attention.

Participants:

Retraction: The “Other Face” of Research Collaboration

Li Tang, Fudan University; Cong Cao, East Asian Institute

Team-dominated knowledge production has become ubiquitous globally. The trend of co-publishing escalating is evidenced by steadily growing team size and proportions of multi-authored publications, many of which are across nation’s borders. Reasons for producing joint research vary, from greater epistemic authority, more easily secured funding, higher-quality work due to cross-pollination of different minds, to possibility of the work receiving more citations. Meanwhile, the number and the annual rate of retraction of scientific research, or the official declaration of withdrawal of an article from the literature for scientific misconduct or significant errors, also have surged exponentially over the last decade. The seeming coincidence, or at least co-concurrence, of the rising collaboration and retraction raises following questions: Is teamwork more likely to be associated with retraction? What factors contribute to the elapsed time between publication and retraction of collaborative work? Unfortunately, in spite of extant research that examines factors impacting retraction, within our best knowledge, no research has systematically investigated the relationship between retraction and collaboration. This study aims to fill this gap in the literature by examining the effect of collaboration – type and size – on retraction. To do so, we draw on two opposite notions from the social psychological literature on group interaction – diffusion of responsibility and internal auditing – and test our hypotheses regarding the relationship between retraction and collaboration on a unique publication dataset of retractions and its control publication dataset constructed by the nearest-neighbor-matching approach. There is evidence in support of teamwork premium inhibiting retraction; ceteris paribus publications with authors from elite universities are less likely but more quickly to be retracted; and among existing and emerging scientific powers measured by the number of publications, China stands out with the fastest retracting speed. These findings will have policy implications for the enhancement of the governance of knowledge production in collaborative research.

The Coloniality of Philosophies of Biology

Shay-Akil McLean, University of Illinois at Urbana-Champaign

Human biology is used as a technical tool to ‘naturalize’ contemporary socio-political orders. What is crucial to blood as well as bone and DNA in modernity is collectivity. From Malthus to Darwin to Fisher, the calculability of demography was merged with the calculability of genetics to produce evolutionary theory. In this paper I critically assess (settler) colonial history of philosophies of biology to investigate the role of biology as a key ideological tool of coloniality (Quijano, 2000; Maldonado-Torres 2007). I argue that biology is central to enforcing colonial typologies that establish and justify relations of domination in part through defining and policing the boundaries of human populations. This is maintained through the colonial claim that “I am the species” (Sahlins 2008), which introduces a way in which the evolution of biological organisms then came to be understood as an evolution of modern Eurowestern society. Demography, genetics, and evolution provide the means of calculation while the colonial claim of “I am the species” defines the space in which the calculus of life and death are implemented. Using the concepts of the calculus of life and I am the species, I demonstrate the role philosophies of biology play in maintaining relations of domination and with the aim of synthesizing an anti-colonial philosophy of biology. An anti-colonial philosophy of biology sets out to transform the means of calculability to then open the possibility for a radical human biology.

A New Hierarchy of Care for Children on Extracorporeal Life Support: Beyond the Illness Narrative during a Rare Therapeutic Strategy

Krisjon Rae Olson, Medical College of Wisconsin

Since the publication of Arthur Kleinman’s The Illness Narratives in the late 1980s medical anthropologists have embraced new tools from philosophy, linguistics, sociology, and literature to think about “illness experience” in novel ways. This approach has been so influential that some medical schools now require its students to take at least one class that helps them learn to interpret patient experiences and find out “what matters most.” This paper seeks to explore the uses and limitations of such narratives during rare events in routine medical practice of a pediatric intensive care unit (PICU) at a large academic medical center in the Midwest. Specifically this paper examines – through participant observation of cannulation events in the PICU – the application of a therapeutic modality called extracorporeal life support (ECLS). ECLS is a form of continuous heart-lung bypass used in the pediatric setting to prolong a child’s life in the setting of extreme illness (such as heart, lung, or organ failure). On ECLS, a child’s blood is routed out of their body through large tubes, moved via a mechanical pump, and oxygenated prior to returning to their body. Even at relatively large centers, ECLS is applied well under 100 times per year, which means that a practitioner may apply this technology only a few times per year. Many centers apply ECLS under 10 times annually. Philosopher Galen Strawson challenges narrativity as an organizing feature of all lived experience, arguing for the recognition and inclusion of non-narrative or “episodic” life experiences like ECLS as equally meaningful to the human experience. Sociologist Paul Atkinson underscores that personal narratives risk “ethical concern for the integrity of the person” not grounded in experience. This paper asks: What happens during these rare events? Do they fit into a narrative structure? What happens when an experience is so rare it is unlikely to become routinized medical practice? Where does the sedated child fit into the recording and retelling of such an event? I examine this intervention through the historically specific lens of American childhood in order to understand it as
180. Theorizing Harm

Chair: Anna Croon Fors, Department of Informatics, Umeå University
Discussant: Eva Svedmark, Umeå University

11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon H

Whether focused on toxicity, disease, disaster, violence, or malfunction, STS scholars have long studied harm. Given the great diversity of approaches and cases, this panel seeks to take an intersectional approach to theorizing harm. We ask how harm is re/defined by the systems it is part of. In Mary Douglas’ theorization of pollution, she claims that, “where there is dirt, there is system: […] a set of ordered relations and a contravention of that order” (1988: 36). Harm is also a contravention of order. What characterizes these orders and their infringement? How are definitions of harm challenged and what is being challenged, exactly? How do different metrics, modes of management, regimes of perceptibility, systems of power, and accountability co-define harm? What are the spatialities and temporality of harm, and how do they co-construct harm? In short, what is harm and why? The answers will depend on their cases, but we hold that despite differences, there are unifying characteristics. We seek to explore these through a collection of papers that explicitly theorize harm. We invite papers from a wide range of approaches to thinking about harm: pollution, biomedicine, ecosystems, disease, labor, race, class, gender, Indigeneity, law, risk, history, reproductive justice, media studies, repair studies, and more. Note that we are seeking papers that explicitly theorize harm, as opposed to those that describe it or its metrics.

Participants:

Desensitization and the Problem of Harm Theresa MacPhail, Stevens Institute of Technology
To be sensitive is to be in heightened state of response. It is one’s body or mind reacting to things in the world. If someone is “sensitive” to grass pollen or dust, then they are reactive to it. Allergens hurt them somehow; the person with a sensitivity “overreacts” to the world around them. The solution, then, is to keep whatever triggers an adverse reaction at bay. And when avoidance is impossible – which it often is – then something about the body has to be changed in order to make it less “sensitive,” to protect it from harm. Desensitization helps the individual – now suddenly transformed into a “patient” – become gradually less sensitive. But the interesting thing about the process of desensitization is that it highlights a certain relationship to the world. Sensitivity reminds us that we live with inescapable risk; to be sensitive is to be exposed, vulnerable, receptive to harm. Desensitization is an attempt to use scientific know-how to wrest partial control back from our environments. This paper will trace the history of desensitization as a medical technology and cultural object, from its start in the early 1900s in immunology to its adoption in the 1950s in psychology to today’s anxiety about the negative effects of 24/7 news cycles, social media streams, and toxins in our environment. Desensitization is the process of making oneself less susceptible to harm. The question at the heart of this paper is this: Are we too sensitive to harm or not sensitive enough?

Defining Harm: The Case of Internet Risks for Children Neta Ziskind, Haifa University and Open University of Israel; Rivka Ribak, University of Haifa
Defining harm: The case of internet risks for children Neta Ziskind and Rivka Ribak Department of Communication, University of Haifa The paper explores the co-construction of internet harm by the different stakeholders involved in the production of the safe-internet curricula in general and Safe Internet Week activities in particular. Safe Internet Week in Israel is a co-production of the Ministry of Education, the police and the army; companies ranging from large internet services providers such as Google and Microsoft to small-scale app developers; and various NGOs dedicated to safeguarding children and adolescents, preventing cyberbullying, suicide etc. Drawing on Douglas (1990), the paper situates how these stakeholders define internet risks in ways that derive from the culture and the technologies they promote; and how their respective, divergent definitions are fused together in the actual production of Safe Internet activities. The way in which the different stakeholders “frame” (Entman, 1993) their intervention defines a problem, diagnoses a cause and suggests remedies (1993: 52). By analyzing policy papers, interviews, and Safe Internet Week curricula, the paper identifies the different problems and the different remedies proposed by various stakeholders. Thus, the Ministry of Education urges students to identify and aid victims of cyberbullying, Microsoft Israel sends employees to promote its privacy solutions while explaining privacy concerns to students, and an NGO devoted to preventing suicide provides an internet-based emotional support service, used mainly by adolescents. The paper discusses the different harms each stakeholder is troubled by. Drawing on the analysis, the paper identifies the complexities that result from the collaboration of the various stakeholders, each advancing different problems and different remedies. It also suggests that in some instances, it is the solution each stakeholder promotes which defines the internet harm each stakeholder brings to this potluck party, rather than vice-versa. Cited references: Douglas, M. (1993). Risk as a forensic resource. Daedalus, 112(4), 1-16. Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. Journal of Communication, 43(4), 51-58.

Irreparability and the Temporality of Harm Gwen Ottinger, Drexel University
STS research on harms related to environmental hazards have implicitly categorized harm in terms of its temporality; we speak of “slow violence,” on the one hand, and disasters on the other. Our categories map on to those used in public health, where health impacts are divided into “chronic” and “acute,” and even the chemical industry, where “environment” issues are treated separately from “safety” issues. But ethnographic research in communities on the fencelines of petrochemical facilities demonstrates that harm stems from an experience of pollution in which everyday emissions, major accidents, and everything in between are inextricably connected. In this paper, I suggest the possibility of transcending these temporal distinctions by theorizing harms instead in terms of irreparability. Attending to the multiple, overlapping processes through which breakage not only occurs but becomes permanent, I argue, can bring chronic and acute harms into the same frame. Further, examining irreparability has the potential to refocus our investigations into community-level responses to environmental hazards, by considering them as attempts at repair, accommodations to loss, or both.

Chairs:
Max Liboiron, Memorial University of Newfoundland and Labrador
Beza Merid, Department of Communication Studies, University of Michigan
Discussant:
Michelle Murphy, University Of Toronto

181. Techno-Jobs and Capital II: Digital Management and the (Free) Labor of Data Markets

Chair: Anna Croon Fors, Department of Informatics, Umeå University
Discussant: Eva Svedmark, Umeå University

11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon H

STS has a long tradition of inquiring about techno-work and providing foundations for studies of locality, partiality, contingency, and agency. Less attention is paid to the connections of techno-jobs to the systems of political economy in which they are embedded. The goal of this track is to encourage explicit discussion of the ways these new jobs are shaped by and sustain capital, and how they relate to broader shifts in the organization of labor and workers. We emphasize how this applies to both elite and subordinate types of techno-labor. It includes high-status jobs like the
entrepreneurs and evangelists who market and distribute technical products for firms and nations, software coders who are bound by corporate non-entrepreneurs and evangelists who market and distribute technical products outsourcing; sharing economies; creative, media, and game labor; venture capitalists; R&D labor; crowdsourcing and micro-labor; dispose of our phones and laptops, etc. We welcome papers that engage automation; bot labor; algorithmic controls of labor; consumer labor; digital strategies within the labor movement. Participants:

Platform Discipline: The Labor Process of Content Producers and Data Analysts in the YouTube Economy Michael Louis Siciliano, UCLA

Based on fieldwork conducted within a multi-channel YouTube network, this paper examines the power of technological platforms upon globally distributed work in digital media. Specifically, I examine the structural and affective relationships between platforms and two types of digital media workers: content producers (“creators”) and data analysts. Like many new forms of work, YouTube creators and analytics workers inhabit ever-evolving, dense socio-technical networks (e.g., cloud-based work). As infrastructures of contemporary work, participatory media platforms incentivize workers to feel “creative” as autonomous entrepreneurs, yet this freedom appears always bound by the political economy of the platform. Thus, I argue that platforms structure work in two ways. First, the YouTube platform invites an entrepreneurial disposition and attempts to enforce through what I term platform discipline—a variant of Callon’s “formatting.” Through educational programs and “advice,” the platform attempts to discipline a global media production workforce. Data-analysis workers reinforce this mode of discipline by advising content producers on platform-specific “optimization” strategies. Second, working on and through the platform elicits an ambivalent mix of frustration and fascination among downstream workers. Both content-producers and analytics workers must navigate the platform’s black-boxed algorithms and ever-evolving structure—often resulting in disappearing revenue sources. Simultaneously exciting and frustrating, these constant technological changes dynamize work. Work changes constantly—a source of satisfaction—yet the platform’s dynamism often intensifies precarity. Workers thus appear fascinated and satisfied by that which heightens their precarity: the unknowable logic that lies behind changes in the algorithms and interfaces through which they work.

The Production of Digital Knowledge Archives through Slack Ope Akanbi, University of Pennsylvania

This paper re-examines historical tensions between labor and capital against the backdrop of the technical and sociocultural features of a communication application employed in workplaces—the Searchable Log of All Conversation and Knowledge (Slack). Slack exemplifies the novel ways in which workers’ knowledge, alongside their social interaction patterns are being archived by capital owners. Designed to be a messaging platform, Slack also doubles as an archival system. While its archival properties are reminiscent of historical managerial attempts to record the expertise of skilled workers, Slack goes a step further to render non-work conversation and general workplace socialization subject to archival, thereby converting workers’ emotional labor into corporate use. The analysis of Slack’s interface indicates that its technical and design features give rise to ingrained cultural orientations. Interviews with users show that the application’s embedded cultural references elicit emotional labor and nudge users towards the use of humor, communication outside traditional office hours and self-censorship. Despite the Slack’s capacity to offer strict control over labor, the paper highlights possibilities for resistance within the technical environment of the application. The paper argues that this dialectic of control and resistance between capital and labor, as enacted within Slack’s technical environment, is informed by the political economy of the media. It points to the implications for actors associated with application development—corporate client ownership of Slack, third party developers, corporate clients and the workers whose knowledge and emotional labor transform the application into a searchable repository of vast amounts and varieties of information.

Measuring Work: Self-Tracking Technologies and the (In)Sensibilities of Labour Karen Dewart McEwen, University of Toronto

This paper explores how technologies for sensing, quantifying, and tracking activities work to assign value to human bodies and lives within the labour context. These technologies range from wearable and handheld devices to record the speed of order fulfilment in retail warehouses, to self-tracking platforms that evaluate freelancers’ productivity levels by recording digital activity 24/7. In order to understand the different aspects of the valuation of labouring bodies and lives, I consider the technological sensibilities at work in these contexts—e.g., the methods for measuring time spent completing a task, or for counting the number of minutes engaged in ‘productive’ versus unproductive activities. This also leads me to consider the equally important work that occurs through technological insensibilities in self-tracking in the labour context. I therefore explore some of the ways in which technologies for quantifying labouring bodies do not always need to ‘work’ in order to work—contexts in which these practices do not rely on precisely or accurately tracking activities in order to have the desired effect of assigning value and/or increasing productivity levels. This insensible work includes framing the individual’s relation with others through comparison and competition via a part/whole relation, providing aspirational (often visual) representations of productivity, and reproducing the classified subjectivities of the observed labourer and the expert manager. Attending to the insensibilities (and the insensible work) of these technological practices opens up an examination of the relations and subjectivities that they reproduce beyond quantified measurements of labour.

Chair: Norma Tamaria Möllers, Queen’s University (Kingston, Canada)

182. The Politics of Forensic Identification in the Wake of Disaster and Atrocity

Traditional (Closed) Panel 11:00 to 12:30 pm

Sheraton Boston: Floor 3 - Clarion

Forensic sciences like anthropology, archaeology and genetics are important mechanisms to restore names to anonymous remains. Such mechanisms are increasingly deployed to identify victims of mass human fatality incidents like political violence, war, atrocities and disaster. Research in STS and beyond has clearly shown that processes of locating, recovering, identifying and repatriating someone’s remains are shaped by intersecting regimes of scientific, legal, and sociopolitical value—from juridical reckoning and reconciliation projects to funerary rites and commemorative events. This panel has two aims: to scrutinize forensic practices in a field sometimes (inappropriately) called “disaster victim identification,” and to reflect on the analyses of those practices by STS and other scholarship. What is it that forensic mechanisms help to reveal, and what is it that remains hidden with respect to, for example, the objects of research or the events leading to mass death? Similarly, what becomes visible and what remains invisible? What becomes evident and what is concealed? This panel is particularly interested in debates about forensic practices in the wake of mass human casualty events as well as with our own research practices, ethics and the politics of our interventions.

Participants:
Cross-Examining Expertise; An Examination of Social Phenomena in Forensic Investigation of Atrocity Crimes

Derek Congram

Forensic expertise in the investigation of atrocity crimes - the criteria that govern methods, interpretation and evidence admissibility at trial - has drawn largely from North American and Western European domestic forensic practice as applied in the post-war former Yugoslavia. With a global justice shift to the International Criminal Court and regional hybrid courts (e.g., Extraordinary Chambers in the Courts of Cambodia, Extraordinary African Chambers), conventional forensic practice is facing challenges to the applicability and definition of expertise. With genocide and crimes against humanity hinging on terms such as "race" and "ethnicity", who qualifies as an expert in defining victim and perpetrator groups, particularly considering past and present impact of European colonialism in Africa? How do court experts represent social categories as scientific facts at trial? How able are North American forensic anthropologists, for example, to interpret funerary custom in the Democratic Republic of Congo, to discern "normal" from "abnormal" burial custom, thereby identifying evidence of criminal mass killings? This paper examines transcripts of expert witness testimony from trials at the International Criminal Court and forensic experience from the investigation of former Chadian President Hissène Habré. It scrutinizes the criteria by which crimes are judged, the applicability and ethics of recent practice and explores implications for future forensic investigation. Recent shifts in the administration of international justice have adapted to local and regional influence, a product of the impossibility of copy-paste solutions. Similarly, though less-so, forensic investigation of international crimes seems to have adapted, in part due to the significant influence of the Argentine Forensic Anthropology Team. This adaptation, however, has occurred in an almost improvised and ill-defined way that is dissonant with the domestic, "Western" movement of standardization and formalization in forensic science.

Disaster and Atrocity Victim Identification Practices: Politics and Normativities

Victor Toom, Goethe University

Efforts to identify victims of disasters often receive public as well as (non) governmental support. Funding, public encouragement, and the provision of expertise and facilities are all articulations of the broad support to 'bring back home' victims of aviation crashes or other mass fatality incidents. While identification of victims of atrocities often are advocated for by surviving family members, community leaders or international organizations, such efforts may simultaneously be hampered by governments under who’s rule atrocities took place or locals who participated in human rights violations. This paper aims to articulate some of the built-in normativities and politics in the practices to identify victims of disaster and atrocity. It does so by contrasting disaster victim identification (DV) practices with those practices in atrocity victim identification (AVI). It uses insights acquired through interviews and literature research in relation to the 9/11 DV effort, the 1995 Srebrenica AVI operation as well as other mass human fatality instances. Questions being asked include: who’s doing the identification, and who’s identified? Who’s not identified? Based on what arguments are victims identified, or not? Which forensic technologies are deployed? And how are families and local communities included or excluded in efforts to identify victims and missing persons? Conceptually, the paper intervenes in actor-network theory, necropolitics, and social studies of forensic science.

Memory and Forensic Reason in Cyprus

Elizabeth Anne Davis, Princeton University

This paper draws from fieldwork conducted with the Committee on Missing Persons (CMP) in Cyprus, a bi-communal agency charged with finding and identifying the remains of 2001 Greek-Cypriot and Turkish-Cypriot combatants and civilians counted officially as missing from episodes of intercommunal and state violence in the 1960s-70s. In the last 12 years, the remains of over 1000 individuals have been exhumed and almost half identified. Many relatives of the victims have expressed relief at receiving their bones and belongings, but others have declined to recognize and claim the remains. Such failures of "identification" are the focus of this paper. I explore accusations raised by relatives and others against forensic scientists at the CMP - prohibited by mandate from making findings as to cause of death - of destroying, hiding, or falsifying evidence. These accusations resonate with widespread suspicions that the CMP is a public relations enterprise enhancing Cyprus’s international reputation as a transparent, peaceful, democratic regime while protecting murderers and war criminals on both sides from prosecution. To elucidate the dynamics of suspicion and truth-making in this forensic process, the paper traces the interplay between confident witness information gathered by investigators and the "drama of revelation" (Tausig) undertaken by forensic archeologists and anthropologists in the public eye. I show how investigators and scientists mobilize global norms of "best practice" in post-conflict forensic investigation to parry the indeterminacy and vulnerability of witness memory and thus to address doubts about forensic identifications that depend, for their truth effects, on recognition by relatives.

"The Dogma of DNA": Forensics and Epistemologies of Ignorance in the Mexican Borderlands

Lindsay Adams Smith, University of New Mexico; Vivette Garcia Deister, UNAM

Both scientists and STS scholars have critiqued the exceptionalism of DNA technologies within forensic investigations. At the same time, a wide array of communities from local governments to human rights groups consistently call for an increase in forensic capacity. In practice, the use of chemical substances and high temperatures are increasingly incorporated into the modus operandi of criminals who seek to make their victims’ remains unsuitable for genetic analysis, while forensic scientists strive to develop more sensitive methods for DNA recovery within ever more costly state-of-the-art facilities. This tension between the power and peril of DNA is made evident in the dilemma of the Equipo Mexicano de Antropología Forense (EMAF) a prominent group working on migration-related disappearance, which relies on DNA technologies and also laments the diversion of significant resources otherwise available for identification towards contesting "the dogma of DNA". Drawing on fourteen months of ethnographic fieldwork, this paper asks how and why have DNA technologies emerged as prominent talking points, whether they were vilified as unrealistic, poorly implemented and poorly understood tools, or glorified as essential tools of truth-making in the midst of widespread impunity? We argue that the power of forensic DNA as a tool of governance lies in this tension between knowing and not-knowing, which in allows certain truths to emerge and others to remain hidden and impossible. Migrant death and disappearance thus offers a window into thinking about DNA as a forensic mechanism that helps not only to reveal horrorism - an instrument of crisis making- but also to reveal the multiple dimensions of power at work in practices of ignorance-making.

Forensic Capacities in the Philippines: Limitations and Practice

Matthew C. Go, Department of Anthropology, University of Illinois at Urbana-Champaign

The management of mass human fatality events encounters several obstacles, including the loss of transportation, communication, and social service infrastructures, that significantly limit the ability of humanitarian responders to ameliorate the situation. In addition to these obstacles, this paper examines local forensic capacity (in broad terms of personnel, education, research, and technology, among others) as an infrastructure itself by taking the Philippines as a case study. The Philippines is the most typhoon-hit country in the world, and has seen recent strife in the form of militant and state-sanctioned violence. Mass casualties are commonplace, especially for the poor and marginalized, and many individuals as a result remain unidentified or missing. A body of Philippine forensic scholarship, including anthropology, archaeology, genetics, and
The Domains of Data Science: Science, Industry & State

The rollout of data science in European, American and Asian contexts with policies, and computational technologies and capacities. A dual focus on commonalities and divergences national and transnational new data sharing pathways. This panel draws together scholars examining boundaries through “domain independent” analytic tools or by fostering appearances to be an indifference or agnosticism to traditional boundaries nation states. More than a “siloed” uptake, a characteristic of data science. Participants:

Chairs: Victor Toon, Goethe University Sarah Wagner, George Washington University

183. The Domains of Data Science: Science, Industry & State
Traditional (Closed) Panel
11:00 to 12:30 pm Sheraton Boston: Floor 3 - Commonwealth

Data science has received a remarkably rapid uptake across the organizations of industry, the halls of the academy and the institutions of nation states. More than a “siloed” uptake, a characteristic of data science appears to be an indifference or agnosticism to traditional boundaries between those domains; even actively seeking to transcend those boundaries through “domain independent” analytic tools or by fostering new data sharing pathways. This panel draws together scholars examining the rollout of data science in European, American and Asian contexts with a dual focus on commonalities and divergences national and transnational policies, and computational technologies and capacities.

Paradise? A Distinctive Mode of Interdisciplinarity in 'Big Science': The case of the Beijing Genome Institute Xiaobai Shen, University of edinburgh; Kai Wang, The ESRC Centre for Genomics in Society (Egenis) at the University of Exeter; Robin Williams, The University of Edinburgh

After discussing various definitions of ‘interdisciplinarity’ in recent literature we propose the concept of ‘paradiscipline’ to capture a distinctive mode of ‘interdisciplinary’ research arising from the Human Genome Project (HGP) in China. It focuses on the Beijing Genome Institute (BGI) is one of the ‘Big Science’ projects in China with distinctive characteristics focussing mainly on how research funding and reward systems, education regimes, technological facilities and human and financial capital and resources may shape and entrench such a mode. This paper addresses intertwining institutional and epistemic factors in the distinctive mode of knowledge production that has emerged at the interface between the hierarchical structures of disciplinary fields and the flatter and more managed structure of a science enterprise with multiple enrolled disciplines.

Data Science Institutes in the Netherlands Sally Wyatt, Royal Netherlands Academy

Dutch universities have a long history of collaborating together even though this tradition has been undermined since the turn of the century, for example via increased competition for research funding and the legal removal of democratic governance (Haffman & Radder, 2015). The recent emergence of data science can be seen as a return to inter-university collaboration. In this presentation I will examine two Dutch initiatives – the Amsterdam Data Science and Heronimus Academy of Data Science – that bring together different universities with their local industry and government partners to offer higher education and research. Drawing on analysis of publicly available material and interviews with key actors, and on insights from STS scholarship about the ‘triple helix’ (Leydesdorff&Etzkowitz, 1996) and knowledge infrastructures (Edwards et al, 2013) in this presentation I will address the following questions: How are data and data science conceptualized? What promises are made about the value of data, data science and data science institutes for students, and the local economy? How do data science institutes reconfigure power and resources within and between universities? How do the institutes handle the tension between local (industry and government) needs with the Dutch research policy emphasis on international excellence? How are local and national knowledge infrastructures mobilized to support the plans of such institutes?

The enduring spell of tacit knowing? : Data science and its discontents in the managerial and policy landscape of Japan Masato Fukushina, University of Tokyo

Since scientific practice is understood as being deeply influenced by its specific genius loci (Livingstone 2003), the recent global development of data science may be an intriguing case of understanding how such a seemingly universal flow of data is related to a particular locality with a specific understanding of data, or even knowledge. A part of Japan’s rather poor development of data science—currently a hot topic within academia, industry, and even policy circles—may have resulted from our favored understanding of knowledge that is fundamentally rooted in our body. This view has been popularized extensively by “The Knowledge-Creating Company” of Nonaka & Taeuchi (1995), with its so-called SECI model of innovation process based on the spiral interface between tacit and explicit knowledge. This book has not only made the term anmoku-chi (tacit knowledge) almost coterminus with innovation itself but also endorsed the creed that mono-tsukuri—roughly translated as craftsmanship/manufacturing—is our nation’s industrial identity. However, the rapid rise of data science, where data largely refer to digital records of any type, has been a challenge to such a widely shared assumption. Drawing on the observation of a couple of different settings where such conflicting views of knowledge actually matter, I discuss the meaning of location vis-à-vis the current development of data science in the dual sense of the word, that is, the very socio-technical location that matters in this development and the very understanding of knowledge in relation to its locality and universality.

Chair: Geoffrey C. Bowker, University of California, Irvine

184. Plasticity, Postgenomics, and the Politics of Possibility I
Traditional (Closed) Panel
11:00 to 12:30 pm Sheraton Boston: Floor 3 - Dalton

The past decade has seen a growing appreciation in the life sciences for the complex relationships between biological and social life. Novel concepts in postgenomic biology and claims of an “environmental turn” in the life sciences are viewed by some scholars as challenging genetic determinism and its emphasis on the fixity of traits and behaviours. Others have raised concerns about the social and political dimensions of these developments. In line with the conference theme of (in)sensibilities, this open panel calls attention to the concept of plasticity, which has emerged as central in a number of burgeoning disciplines including social neuroscience, environmental epigenetics, nutrigenomics, microbiomics, and developmental origins of health and disease. The panel will bring together papers that critically examine plasticity from various disciplinary, empirical, and theoretical perspectives. We invite papers that look at the complexity and ambiguity of plasticity, its meanings and potential consequences for the governance of life processes and populations, its temporal and gender politics, its impacts on sociotechnical imaginaries across contexts, and its implications for social and environmental justice in the Global North and South. Far from celebrating plasticity, we invite papers to critically reflect on its relationship to contemporary shifts in the life and social sciences, its historical legacy, and the promises and hype surrounding the concept. The panel seeks to broaden our critical imagination and to support scholarship that thoughtfully engages claims that a more profound biosocial era is upon us, in which the innate and the environmental, historical and contemporary, are increasingly entangled.

Participants:
Abnormality, Pathology, Plasticity: Conceiving Tensions in PGT Juliane Collard, University of British Columbia
The use of preimplantation genetic tests (PGTs) has become...
increasingly routine in assisted reproduction. Used to screen IVF embryos for an every-widening array of ‘abnormalities’ before they are implanted in the womb, these technologies signal a change in how life is understood, taken hold of, and governed. Coupled with emerging theories of human reproduction and development, they are granting researchers, clinicians, and prospective parents unprecedented – though always incomplete – control over biological reproduction. This paper offers a selective cut into the world of PGT. Drawing from fieldwork conducted at medical conferences, fertility clinics, and embryology labs in the Western U.S., I will examine a tension growing at the heart of this biomedical practice: that between the still dominant notions of genetic determinism in which it trades, and the novel understandings of biological plasticity with which it must come to terms. While seemingly a challenge to the primacy of the gene as a predictor of future living-being, I argue that, under the logic of PGT, theories of plasticity overlap with those of genetic determinism around concepts of abnormality and pathology. The naturalization of social categories and hierarchies of difference by recourse to ‘innate’ – if now plastic – biological deviance persists; life itself is re-articulated through the rationalities, epistemologies, and methodologies of the life sciences; and the womb is reaffirmed as a key site in the biopolitical management of social, political, and economic futurity. These processes, I suggest, echo much older, violent histories of intervention and control at the intersection of sexuality, pathology, and abnormality.

Biocultural Approaches to Genetic Ancestry: Plasticity Denied, Possibility Foreclosed? Noah Tamarin, Ohio State University

This paper considers the tensions between many geneticists’ increasingly complex and often non-essentialist ideas of what genetics tells us about history and identity alongside some of the ways that people who are part of genetic studies take up genetic data as ultimate, essential, and unalterable truth. It asks how such tensions might shed light on what it would mean to take a biocultural approach as an ethnographer of genetic, genomic, or post-genomic science in popular circulation and imagination. The paper considers how some Lember people in South Africa have made sense of and produced new knowledge about their DNA in the aftermath of their participation in genetic ancestry studies that aimed to demonstrate their links to Jews. At issue is that some of this new knowledge that Lember people produce about their DNA can be characterized as essentialist and static. The paper argues that even as this seems to deny plasticity and to foreclose possibilities, it also potentially opens new kinds of plasticity and possibility in the sense of flexible, strategic repertoires through which genetic ancestry as something essential and static can be authorized, denied, and utilized for different ends. Considering intersections between STS, anthropology, and postcolonial theory, this paper considers if and how biocultural approaches and biogenetic materials might complicate Gayatri Spivak’s classic postcolonial theory of strategic essentialism, and how else to make sense of the complexities of bio-essentialisms.

A Postgenomic Body? Genealogy and Open Questions

Maurizio Meloni

The postgenomic body refers to an emergent form of life that is taking shape in the fifteen years following the completion of the Human Genome Project. After introducing postgenomics as a different though-style compared to genomics, one that emphasizes in an unprecedented way the dependence of genomic functioning on time and places, I outline some of the implications of this view for a rethinking of the human body. Gathering from various disciplines (particularly environmental epigenetics and microbiomics), I understand the postgenomic body as a body radically exposed to and in dynamic exchange with its surroundings, a body with a local geography and a history (of the material exposures of its predecessors). Genealogically, the postgenomic body can be understood at the confluence of five (very) different strands: a) a break with the self-bounded, discrete, independent and universally-valid body made by the medical and genetic revolution (sometime between 1850 and early 1900s, with its mono-causal view of disease); b) a (neo-)materialist) return to views of the body as plastic and locally determined (imprinted), and the environment as an immediate creator of organismic change that were highly influential from Hippocratic medicine to the early nineteenth century; c) a radicalization of lines of thinking that were present but marginal in twentieth century genetics (in developmental biology, non-Mendelian inheritance, but also certain views of G×E interaction); d) a culmination of neoliberal and consumerist views of health as resulting from personal decisions and responsibility to shape a permeable and flexible body for the better; e) an unprecedented attempt to track, quantify, and digitize the full regime of lifetime exposures that make any person (or social group) molecularly unique. Given the singular mixture of these different sources, and the radical changes we are witnessing in international politics these days, the biopolitics of the postgenomic body remains open to the widest (and wildest) range of political usages, from extreme racism to ambitious claims of environmental justice and reparations (as the deeply ambiguous history of the politics of biological plasticity well exemplifies).

An Imagined Future Community: Taiwan Biobank, Taiwanese Genome, and Nation-Building. Yu-yueh Tsai, Institute of Sociology, Academia Sinica

Since 2000s, the completion of the Human Genome Project heralded the ‘post-genomic era’. New biomedical technologies create new possibilities, facilitating the development not only of new knowledge, but also of new identities – the emergence of imagined genetic communities which represents the co-production of science/technology and society. Taiwan Biobank is one of national genetic projects which have developed in the context of rapid global growth of biomedicine. This article analyzes the relationship between the establishment of the national genetic project and nation-building in Taiwan. It argues that life sciences and social imaginaries of futurity of scientists have played an increasingly important role in nation-building in the globalization era. The advocacy of the notion of ‘Taiwanese subjectivity’ in politics since the late 1980s has influenced humanities, social sciences, and natural sciences. The human classification emphasizing Taiwanese identity (rather than Chinese identity) has shaped the knowledge-making of such scientific projects as Taiwan Biobank, in which the discourses of “Taiwan must have their own laboratory” and “Taiwanese unique genetic compositions characterized by its multiple ethnic origins” prevail. Also the Taiwan Biobank aims to recruit national citizens and calls on “Taiwanese to work together for a healthy future generation.” This recruitment strategy and discourse in turn has the potential of building the common imaginaries and emotions of Taiwanese as an imagined future community. This article emphasizes that imaginaries of scientists are not purely scientific. The future imaginaries involved in scientific discourses are coproduced with identity politics in Taiwan and have obvious social and political implications.

Chair: Maurizio Meloni

185. Querying Open Knowledge

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Exeter

Participants:
Wisdom of Politically Polarized Crowds Misha Teplitskii, Harvard University; eamon duede, University of Chicago; feng shi, University of North Carolina

Recent political events, including the 2016 presidential election, have underscored that the effects of political hyper-partisanship [Campbell 2016, Fiorina and Abrams 2008] are not confined to political decision-making alone. A growing literature documents the various pathways through which individuals’ political
Preserving the Margins: Designing for Unpredictable Behavior

on knowledge consumption implies that political polarization how politically polarized teams perform is unclear. The literature that politically polarized teams create pages that are of higher pages. We then measure the quality of Wikipedia pages edited by Wikipedia’s edit histories of tens of thousands of pages, we first of edits they contribute to liberal and conservative political knowledge on an unprecedented scale. Using English political polarization on the quality of crowd-produced scientific inconsistent predictions, we empirically evaluate the effect of thinking that falls short of the analytical depth that we expect of report by the National Association of Scholars to the University performance of teams and firms [Herring 2009, Mannix and Neale 2005, Page 2008], contributing even more to performance than ability [Hong and Page 2004]. Despite plentiful research on how teams with diverse gender or racial composition perform, how politically polarized teams perform is unclear. The literature on knowledge consumption implies that political polarization may degrade the stocks of knowledge individuals bring to teams, destroying any potential benefits of diversity. The literature on knowledge production speculates otherwise. For instance, a report by the National Association of Scholars to the University of California system entitled “A Crisis of Competence” reports that in the homogeneously liberal academia a one-sided “[political activism] will tend to promote shallow, superficial thinking that falls short of the analytical depth that we expect of the college-educated mind” (pg. 5). To elucidate these inconsistent predictions, we empirically evaluate the effect of political polarization on the quality of crowd-produced scientific knowledge on an unprecedented scale. Using English Wikipedia’s edit histories of tens of thousands of pages, we first measure the political alignment of editors by the relative amounts of edits they contribute to liberal and conservative political pages. We then measure the quality of Wikipedia pages edited by teams that are polarized or moderate in political alignment, focusing on effects for both political and science pages. We find that politically polarized teams create pages that are of higher quality than politically moderate teams. This effect appears for both Wikipedia’s political pages and science pages. In other words, the group consisting of polarized individuals that is balanced at the group-level performs better than a set of equally motivated individuals who are each moderate individually. We argue that the disagreement within the polarized teams results in debate and, consequently, claims that are more robust and complete. This study provides the first empirical evidence of the somewhat counterintuitive value of political diversity, in even seemingly apolitical contexts like science pages.

Preserving the Margins: Designing for Unpredictable Behavior on Open Online Knowledge Production Platforms Gabriel Mugar, Engagement Lab at Emerson College

Experts and leaders of open online knowledge production platforms like Wikipedia must contend with a high volume of new users that are not familiar with how to contribute. To ensure that newcomer contributions are aligned with project objectives, various points of entry for participation and learning are created to constrain what newcomers learn and how they will contribute. While such tactics work to establish some degree of predictability and stability in knowledge production and newcomer behavior, they also create what I describe as a center-margin dynamic, intentionally or unintentionally biasing specific practices and knowledge while suppressing and marginalizing others. I motivate the concern for focusing on this center-margin dynamic by looking to Heidegger’s question concerning technology (1977), where he suggests that technology’s role in harnessing the power of nature can also lead to the suppression of poiesis, or new and emergent possibilities. Using Sørensen’s forms of presence (2009), I draw on extensive participant observation and interviews to explore the sociomaterial performance of newcomer agency on two open online knowledge production platforms, unpacking how newcomers negotiate the constraints on learning and participation, sometimes aligning with the center of practice to perform predictable behavior, and in other cases resisting the constraints by seeking out the margins of the platform to make contributions that deviate from the norm. By describing these constructions of newcomer agency, I outline how leaders and experts can contend with tensions between predictability and unpredictability, ensuring quality contributions while also leaving room for emergent practice.

Three Participatory Technology Assessment Narratives: The Challenges of Public Deliberation in the United States Federal Agency Institutional Context David Toblin, University of Maryland, College Park; Mahmud Farooque, Arizona State University

President Obama’s Open Government Initiative primed technical experts from several agencies to experiment with participatory technology assessment (pTA), a deliberative method for eliciting lay citizen input prior to making policy decisions. This study seeks to explore the value of pTA as a boundary object, a device where multiple epistemic cultures can come together and maintain their unique identities, negotiate existing and evolving institutional narratives, while still being able to exchange ideas. We use three cases of government agencies adopting pTA in partnership with a boundary organization, Experts and Citizens Assessment of Science and Technology (ECAST), to explore how existing and evolving institutional narratives influence pTA development and implementation. Each agency’s narrative associated with adopting pTA represents a particular STS story. NASA saw pTA as a way of broadening its relevance to the public and increasing its portfolio of initiatives to democratize missions. The Department of Energy adopted pTA in the aftermath of 30 years of failing to site a permanent nuclear waste repository (Yucca Mountain) through top-down, technocratic approaches. NOAA found the science-centered model of education ineffective at convincing large segments of the U.S. population (including decision-makers) of the importance of addressing climate change and sought pTA as a process for transitioning to user-centered science. This talk employs the boundary object concept as lens for understanding the multiple ways procedures and outcomes of pTA were negotiated in each of the case studies. Taking this into consideration, we will outline the challenges of maintaining the integrity of pTA in the U.S. federal government decision-making context.

Observing Archives: Web Archival Labour as Socio-technical Practice Jessica Ogden, University of Southampton; Susan Halford, University of Southampton; Leslie Carr, University of Southampton

This paper presents the preliminary results of an ethnographic study of web archiving, in an effort to explore the ways in which practitioners shape the preservation and maintenance of the archived Web in its various forms. A combination of non/participant observation, documentary sources and interviews were conducted over the course of several weeks in collaboration with web archivists, engineers and managers at the Internet Archive – a private, non-profit digital library that has been archiving the Web since 1996. Whilst several socio-technical components of practice have been identified thus far, this paper focuses on the types of ‘knowledge work’ that informs the selection, collection, repair and maintenance of the archived Web(s). This work draws on Downey (2014) and recent calls within STS (Jackson 2014; Russell & Vinsel 2016) to move beyond a pre-occupation with innovation to consider the repair and maintenance of technologies as potential sites of critical engagement and social discourse. Here the concept of ‘web archival labour’ is proposed to encompass these practices and highlight the ways in which web archivists (as both networked human and non-human agents) shape and maintain the preserved Web through practices that are often embedded and obscured by the complex technical arrangements of collection and access. As a result, this engagement positions web archives as places of
knowledge and cultural production in their own right, revealing new insights into the performative nature of web archiving that have implications for how these new forms of social data are used and understood.

Anthropophagic Networks: The Role of the “Artist Class” in Brazilian Technology Transfer and the Myth of Use-neutrality

Beatrice Chicago Choi, Northwestern University

In his 2003 inaugural speech as Minister of Culture, Gilberto Gil vows to “transform the ministry into ‘the home of all those who think about and invent Brazil’”, setting favorable conditions for technology-based measures for progress. He infuses his message with tropicalista themes, explaining, “We want to do an anthropological massage [to] the body of the ministry”. In a reference to anthropophagy, first coined in poet Oswald de Andrade’s “Manifiesto Antropófago”, Gil evokes the cultural tendency to “absorb and digest, European culture and transform it into something distinctly, uniquely Brazilian”. Through Andrade, Gil voided by Brazilian innovators and artists alike: that the epistemological freedom to claim originals, create art, and define scientific breakthroughs resides predominantly with other developed, often Westernized nations. These communities categorically refuse the assigned role in the “original/derivative” dualism, where Brazil embodies a “necessarily muddy copy of Europe”. As minister for former president Luiz Inácio “Lula” da Silva, Gil bridges two periods of Brazilian history with diverging investments in local innovation and creative economies. First, in the 1960s-1970s, the Neconcretismo and Tropicalia movements coincide with the mass introduction of computers during the military dictatorship. Second, during the 1990s-2000s, the technocratic elite embraces open-source software (FLOSS) as cultural policy under Gil’s administration. During these two periods, I argue that an evolving network of artists, scientists, and policymakers compose anthropophagic networks to reflect the changing ideological investments in innovation and cultural production in Brazil. I build a media history through archival records, interviews, and media coverage to investigate how creative economies, which current Minister of Culture Ana de Hollanda labels the “artistic class”, forge networks between the artistic vanguard and technocratic elite, and institutionalize their exchanges as cultural policy. Ultimately, I consider how intersection of local art and technology exposes the “coloniality of power” behind the pervasive myth that innovation is “use-neutral”.

Chair: Jessica Odgen, University of Southampton

186. The Ethnographic Effect: Imagining a Next Generation of Methodological Possibilities I

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Fairfax A

STS scholarship draws on two distinct methodological imaginaries when considering how it produces knowledge. On the one hand there are detailed, meticulous and somewhat prescriptive guidelines to data collection, production and analyses sanctioned by particular scholarly communities. On the other hand, we find theoretically innovative descriptions of results based on methodological tactics that privilege unruly, creative and improvisational approaches. This panel invites scholars who wish to explore the space in between these two families of methodological approaches. It begins from the assumption that while academic knowledge production depends on methods and theories, unruliness and creativity are intrinsic to their emergence. We hope to recuperate the notion of the exercise as an embodied space of rediscovery while excising from it the idea of “mastery.” Whether being carefully designed or invented on the fly, exercises unleash intuition, invention and recuperation of generative traditions. Exercises enable the conditions for the ethnographic effect, which we take to be unexpected journeys with our materials after they have been generated. We invite scholars who have developed their own exercises to discuss the theoretical and political underpinnings of their thinking and doing. We will focus on the “mechanics” of their inventions as well as on how their contributions build upon, expand, interrupt or redirect existing ideas. Recognizing that the promise of mastery is misleading and that method, both generic and specific, is never abandoned each time they are performed, we open a space to consider practicalities and politics of methodological creativity and analytical innovation.

Participants:

Framing the Ethnographic Effect

Brit Ross Ross Winthereik, IT University of Copenhagen; Andrea Ballesteros, Rice University

Marilyn Strathern has invited us to think about different analytical modalities, including how, once temporal and spatial relocation has happened after fieldwork, we relate analysis that took place when in the field to the analysis we perform when at the writing desk. Strathern conceptualizes this relation as one of rediscovering what was present ‘then and there’ and what seems present ‘here and now’. Taking inspiration from this approach, we wish to explore analytic practices and their role in unleashing what we might call the ethnographic effect, a particular form of knowledge about what happened ‘then and there’ transposed to a specific ‘here and now’. Tacit practices, habits and ad hoc techniques trigger this particular form of insight. If, as analysts, we live with our ethnographic materials and inside our analytical frames, no matter whether we are ‘in the field’ or ‘at the desk’, how do we trigger that moment? In this paper we share two techniques for re-creating the field at the desk Analytic moves and Podcasts. We share some of our sentiments for shifting the focus from mastering ethnography to exercising analysis in anthropology and STS. We are proposing ‘the exercise’ as a form of experimentation, but are also aware that the experiment/experimentation have become new forms of governance. STS has taught us about experiments as sites for cultural redefinition and politics. What STS (in)sensibilities do we need, to pay due attention to experimentation as a fetish of the contemporary?

Listening Across Borders: Migration, Dedications, and Affect

Alexandra Sharp Lippman, University of California, Davis

How can one listen to immigration? What might it sound like? Where could we tune our ears to hear these stories? I explore how recorded performances of the diasporic Mexican music genre, cumbia sonidera (sound system cumbia), provide a mode of transmitting messages and creating sonic co-presence across national borders. At performances, audience members hand over slides of paper with dedications written on them and sometimes their mobile phones—which are on international calls to family members. Speaking through sonideros, the public calls out to absent loved-ones via baroquey, sentiment-dubbed cumbia songs. Audiences send the recordings of these performances to family members named in the dedications thus creating sonic ways to remember, feel, and connect across borders. Saludos (salutations or dedications) trace an auditory archive of relations, migration, and feelings of longing, love, and homesickness for family and villages left behind. I attend to the role of the acoustic in constituting immigrant lifeworlds through both conventional ethnographic approaches—interviewing and what Lila Abu-Lughod terms, “deep hanging out”—and more experimental listening-intensive methods—analyzing hundreds of dubbed cumbias and curating a music compilation of cumbia produced between Los Angeles and Mexico. I contribute to discussions within STS through attending to how sonic technologies are creatively used to register emotion, and produce relations and memory across increasingly militarized and difficult-to-cross borders.

Generative Collectives in Argentinean Care Trans*Formations:

Methodological Possibilities from the ‘In Between’

Sonja Jerak-Zuiderten, Linköping University, Technology and Social Change; Teen Zuiderten-Jerak, Department of Thematic Studies - Technology and Social Change, Linköping University

Italian hotel receptionist in Chivilcoy, Argentina: ‘If I the
people get more human rights, I’m fine with that.” Chivilcoy
GP and head of inclusive consult: “I see that differently: more
human rights for them means more human rights for me.”
Lohana Berkins, Argentinian trans* activist: “Without travas
there is no revolution.” Green fields. Cows. Rusting wagons. An
abandoned railway station. More fields. A monumental gate to a
hacienda. More cows. A grid town. Single storey houses. We’ve
reached Chivilcoy. Hosts to one of the leading teams in trans*
care in Argentina. In Chivilcoy. 60 thousand inhabitants.
Statistically speaking that means 30 trans* people. And if trans*
care is a matter of human rights you can’t expect them to move to
Buenos Aires, though only a two-hour drive. The teams’ biggest
success: 1) a quota agreement with the municipality and local
companies for 15 employments; 2) a large LGBTIQ rainbow-flag
mural on the town square, next to the police station and the
church. That is where we will celebrate tonight. Celebrate sexual
diversity. In Chivilcoy. This is a story on trans* care that is not
about specialized medical teams but about integrative action.
No cis-male-endocrinologists but a trans*woman-nurse. No
university medical center but a town square. No Euro STS ‘issue
politics’ but political health action by generative collectives.
Where methodological mastery becomes an exercise in STS
scholars, those in the field, and their concepts becoming
companions. An exercise in attending to the in between when
telling a story.

Asking Again and Again: Moving Between Questions in
Development Research in Afghanistan Tjitske Holtrop
This paper is about asking questions in a study about
transportation in the South of Afghanistan. I conducted this study
in 2011 as an anthropologist employed by a research organization
in Kabul. The paper starts with an exploration of the worlds of
transportation that are brought into being, first, in questionnaires
and, second, in interviews. What follows is a discussion of how
the questionnaires and interviews became critical stakes in the
relation between two my supervisor and me. This paper borrows
from academic reflections on the relation between development
theory and post-development theory to consider this relation
beyond critique. Moreover, it considers movement as part of the
method of asking questions. Following a move from the research
organization in Kabul to an academic office in Amsterdam, I
revisit the questions asked in and about development research.
This analytical move of ‘asking again’ questions the bases of
critique, as it opens up to the similarities and differences between
anthropology and development research as modes of engagement
that attempt to understand, represent and work within a complex
world.

Analogics Antonia Walford, UCL
In this presentation, I will reflect on analogy as a technique or
tool of thought. Starting with a brief exploration of analogy as a
crucial element in Marilyn Strathern’s work (not least in
anthropology and development research as modes of engagement
that attempt to understand, represent and work within a complex
world.

A January, 2016, survey found more Americans are worried about data
privacy than losing their main source of income. To date, Google has
removed over 663,280 URLs from personal search results in response to
users exercising their right to be forgotten. And since July, 2016, 120
journalists have been arrested in Turkey for content expressed online.
Privacy and data protection have become incredibly complex, relevant
topics. Approaches to privacy and data protection are often either legal
(with an emphasis on the roles and responsibilities of the individual, rational
subject and formal governance tools of the state) or technical (with a focus
on machine capabilities, problems, and solutions). However, some of the
most influential recent thinking on privacy and data protection has
explicitly incorporated sociotechnical knowledge and approaches. As STS
scholars engaged in privacy and data protection issues, we believe that
work on the sociotechnical problems of surveillance, database, privacy,
boundary negotiation, memory, forgetting, and data-facilitated power can
advance both the technical and legal aspects as well as the economic,
ethical, social, international, and historical aspects of the conversations. We
solicit papers that address these topics from a sociotechnical perspective.
This may include but is not limited to topics related to: Privacy as a social
challenge; Privacy and technology in historical context; Sociotechnical
aspects of data protection; Privacy and boundary negotiation by individuals
and communities; Impacts of datafication on individuals and communities;
Memory and forgetting; Data imperatives, economies, and/or cultures;
Global politics, surveillance, and speech.

Participants:
Confidante Games: Spanish Prisoners, Nigerian Princes,
Counterfeits and Lockpicking Nathanael Bassett, University
of Illinois at Chicago
Security artifacts establish a sense of order and control over
otherwise vulnerable property or concepts like “identity.” The
function of these artifacts goes beyond the pretense of keeping
things safe, and provides a physical record of deviance, lending
materiality to perceived harm inflicted on others. The historical
emergence, use and subversion of these artifacts illustrates their
essential political quality. Identity documents, locks and keys all
now exist as a mundane backdrop to ubiquitous digital identity,
security and privacy technologies. But these are all linked with
the same concerns around the use of real names on social media,
privacy, and the abuse of anonymity. We accept the “sensibility” of authentication, and we
implicitly trust the locks on our homes. But practices like forgery
and lockpicking illustrate how expertise can easily defeat
security artifacts. In doing so, there is evidence for what was
once a nebulous grievance - misrepresenting oneself, accessing
unsecured property. These “insensible” actions represent the
rejection of privacy and security apparatuses. But con artists are
not the only resisters of order and control. The undocumented,
the desperate, and anyone whose agenda does not match the
intentions of the apparatus must work to “trick” others. This
paper combines a media archaeology of identity documents and
lock design with a historical analysis of privacy and security.
Privacy and security apparatuses and their artifacts authenticate
users, but always in a way that is consistent with the agenda of
the apparatus and its designer. These apparatuses are imposed on
others, by seeming necessity and expectation and in a broader
sense, through force, on both bodies and property. The growth of
identity databases and proliferation of national registration
coincide with an era of colonialism and nationalism. The
incentive to protect one’s identity hinges on establishing it,
consenting to the apparatus and accepting its necessity. In time,
use and consent to these socio-technical political apparatuses
becomes only “sensible.”

Devising Identity: Wearables and Persistent Identity Steven
Richardson, Queen’s University; Debra Mackinnon, Queen’s
University (Kingston, Canada)
IT and HR departments are beginning to merge as wearables and
Internet of Things (IoT) devices are introduced into workplaces.
As a result, human-machine identity management frameworks,
such as ‘Bring Your Own Identity,’ ‘Identity of Things,’ and
‘Identity Architecture,’ are increasingly being developed and
discussed by these groups. Providing a means to manage and

Chair:
Andrea Ballestero, Rice University

187. Sociotechnical Approaches to Privacy and Data Protection
II
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Fairfax B
authenticate machines and employees in a network, these recent developments suggest a need to decouple the notion of identity from its biological underpinnings. Evinced in legal and policy documents, identity is typically defined as ‘any information relating to an identifiable person’; – what is stored about a person is constitutive of, and inseparable from who that person is (Ajana 2013:8). Yet today, the question of “who you are” may no longer simply be a representation of uniqueness or individuality (Ricoeur 1992); our identities are dispersed and distributed across the myriad nodes, networks and devices that populate work and everyday life. Instead, “who you are” is now better understood as a persistent feature of everyday relations between people and things. This presentation will explore these themes by addressing how the biopolitically-specified concept of identity is changing as new technologies, such as IoT and biometric wearable authenticators become more common in workplaces. In doing so, we seek to promote a concept of identity that contributes to contemporary political sensibilities that are “more open to the uncertainties of the future, more accepting of difference and diversity, one that stresses the importance of relationality over technicality, of communication over fear and of openness over prudentialism” (Ajana 2013:14).

Health, Pervasive Data, and Privacy: Negotiating Boundaries in Sociotechnical Spaces Matthew Bietz, University of California Irvine; Cynthia Cheung, University of California, San Diego; Cinnamon Bloss, University of California, San Diego

Individuals are frequently faced with making decisions about privacy and disclosure, ranging from deciding what to reveal to a health care provider or employer to sharing personal information on a smartphone. However, these decisions must frequently be made without much understanding of how information will be used, the benefits of sharing, or the potential risks of disclosure. In this presentation I will discuss the ways that individuals approach these decisions and understand privacy in an era of complex sociotechnical systems and pervasive data. I will also discuss the ways that traditional modes of reasoning about information flows and inference may be inadequate for new information and communication contexts. For example, frequently cited metaphors like “getting lost in the crowd” may not suffice when faced with the focus and precision of big data and machine learning. This work draws on an ongoing qualitative study of privacy understandings and preferences as they relate to health, medicine, and wellness. At present, we have interviewed forty-two individuals and conducted seven focus groups with sixty-four participants. Our goal is to understand the different framings, analogies, and ways of knowing that individuals employ for understanding privacy and information flows in sociotechnical systems. This work will, in part, inform ethical considerations around issues of informed consent and increasing participation in health research.

Transnational Genetic Surveillance: New Challenges to the Governance of Crime Helena Machado, Centre for Social Studies, University of Coimbra, Portugal; Rafaela Granja, Centre for Social Studies, University of Coimbra, Portugal; Marta Martins, Centre for Social Studies, University of Coimbra; Sara Mato, Centre for Social Studies, University of Coimbra

There is a widespread cultural belief that criminal DNA databases are a veritable “truth machine”, holding the unrivalled capacity to identify authors of crimes. STS and surveillance studies have contributed to the opening of the DNA black box by focusing on contingencies and controversies. At the same time, criminal DNA databases create acute challenges to civil liberties and citizenship by reinforcing criminalisation of particular individuals and populations. This paper contributes to this debate by exploring the views of forensic experts engaged with a technologial system developed in the European Union for the automated exchange of DNA data among countries for combating cross-border crime, terrorism and illegal immigration. On the basis of interviews with forensic experts working in different EU countries, our questions are the following: What makes DNA and other biometric data a powerful tool for surveillance across national borders? Which hopes and fears travel along with them? How are controversies and tensions between transnational and national standards of privacy and data protection managed? How does the circulation of data perform notions of suspicion? Transnational genetic surveillance raises new challenges to the governance of crime due to the circulation of data across different national, infrastructural and technological, and legal contexts. Forensic experts activate boundary negotiation to produce heterogeneous moments of subjectivization that entangle claims of veracity and robustness of DNA evidence with openness and vagueness. The assemblage of uncertainty and controversy is continuously combined with stabilized categories of suspicion directed to the production of a new subject of surveillance – the transnational suspect.

Familial Searching and Controversies in ‘Hybrid Forum’ Rafaela Granja, Centre for Social Studies, University of Coimbra, Portugal; Helena Machado, Centre for Social Studies, University of Coimbra, Portugal

Familial searching is an investigative technique that makes use of procedures for detecting genetic relatedness. It is employed in exceptional circumstances in criminal DNA databases for the purpose of identification of criminal suspects through their connection with relatives. Its application in the criminal justice system is pervaded with scientific, legal, and ethical controversies and characterized by a differentiated regulation across Europe. Drawing on interviews with forensic experts, we explore how controversies around familial searching have been managed in different countries. Data reveals three different forms of governing familial searching: regulation by exceptionality, prohibition by conflict and restrictive use. These dimensions entangle diverse socio-historical and techno-political backgrounds, disparate forms of public accountability, distinct understandings of privacy, and changing notions of what are the socially legitimate uses of genetic technologies. By highlighting the transitional, mobile and dynamic character of familial searching across different social, political, institutional, and infrastructural contexts we therefore argue that controversies are enacted in a ‘hybrid forum’. This hybridization cuts across disciplinary boundaries, thus encompassing a wide array of epistemic cultures, practices and interests that significantly affects the governance, regulation and use of data. We conclude that the uses of familial searching for the identification of criminal suspects produce wide and complex implications in the governance of social order. In particular, outlines how forensic science is actively constructing new sets of suspects in ways that move from individual identification towards the clustering of “suspect” populations on the basis of biological make-up.

Chair: Katie Shilton, University of Maryland, College Park

188. STS and the Design of Dying, Death and the Afterlife II

Traditional (Closed) Panel 11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Gardner A

It has been argued that many of us live in a culture where the dead and dying are increasingly sequestered from the living and enveloped in (bio)medical discourse and practices. Yet, social media, novels and films have made death present in new ways through their digital afterlife, imaging, and legacies. This panel explores STS-related work on these shifting and complex configurations of presencing and absencing dying, death and the afterlife through an empirical and analytical attention to the various historical and cultural spaces that are envisioned, designed and built for the dying and the dead, what these spaces (in)pressentize to, and how they are governed and done. Furthermore, we focus on affective methodological reflections about the study of dying and death as a process of care. We invite a broad scope of contributions, including (but not limited to) the following themes: 1. Designing death-scapes: the design of (urban) spaces to accommodate the dying, the dead and their afterlives, as well as the materialities of organizing dying, death, and life beyond death.
What new narratives are formed and stem from places of death as arenas for doing, imagining and re-making dying and death? 2. Unpacking the normal and variations of ‘the good’: what goes into ‘good’ ways to die and norms of dealing with the dead and their afterlives? 3. Intersections/transitional spaces and boundary work: when does ‘dying’ start, when do lives end, and how are boundaries drawn and done?

Participants:

Digital Death: Digitalization of Medical Technologies and Conceptions of Death  
Kostas Raptis, National and Kapodistrian University of Athens; Aristotelis (Aristotle) Tympas, National and Kapodistrian University of Athens

In recent decades, the dominant trend in the field of medical practices is the replacement of analog technologies by digital ones (more accurately: the further digitalization of medical technologies; the increase of the digital/analog ratio in medical technologies). It is usually assumed that this represents a linear evolution from universally lower-analogue to upper-digital technologies. Researchers (e.g. that by Tympas), however, from the field of Science and Technology Studies have argued that this trend corresponds to the increase of the ratio of dead (accumulated)/living computational labor integrated into medical technologies. Through research on hospital’s archives, medical journals, conferences’ proceedings and trade catalogs promoting the integration of digital components into medical technologies, we will try to connect this approach with STS approaches that investigate the relation of medical technologies with experiences and conceptions of death (e.g. that by Lock). More specifically we will do this in the case of technologies of relevance to cancer diagnosis and treatment. As our argument goes, the incorporation of digital components in medical technologies has changed the concept of death and affected the way death is being experienced. And this has taken place not by defining death but by defining life in new ways. Death is being exiled, is hidden and its presence equates with failure of medical science and technology. We are confronting with several questions: Is death perceived as a technical failure? Or as something that should always be postponed, if not cancelled? In which ways dying is being confronted as a kind of illness and how this affects care process for the living? And, more specifically, how is digitalization shaping the concept of death?

Living on as Flesh and Data: Exploring how Danish Whole Body Donors Envisage Physical and Digital Spaces of Death and Afterlife

Maria Olejaz, Center for Medical Science and Technology Studies, University of Copenhagen

This paper, based on in-depth interviews with Danish whole body donors, explores visions of what may be termed “biomedical afterlife”, as articulated by people wishing to donate their body to science. The paper takes point of departure in the evolving plethora of purposes for which bodies donated to science are now used. These various potential purposes are used analytically to unfold how donors articulate multifarious versions of “living on” as (amongst other things) whole bodies used for dissection courses, tissue samples stored in freezers, genetic test answers, and data points in an excel sheet. The paper asks how these visions of biomedical afterlife intersect with and draw on other registers and traditions within death and dying, thus contributing to the ongoing work within STS interested in the dynamic mutual shaping of the social and sensible lives of people and the production of biomedical objects and knowledge. Furthermore, the paper contributes to methodological and theoretical discussion of death and dying within STS, as it asks how we, as STS scholars, might come to ask about death and afterlife; states and phenomena which cannot be experienced or sensed in any direct way, but which are of course still made sense of as people act on their death and afterlife, whilst still being alive.

A New Way of Dying

Maria Pilar Bacci, Universidad de la Republica

This paper shows the difficulties to understand brain death of a person that is evidenced by its mourners. The study was carried in a little country in South America. The data presented proceed from a qualitative investigation about grief of twenty persons that donated organs of a familiar that had brain death. The conceptual framework which supports this work is the psychoanalysis, even though anthropology, philosophy and medicine conceptualizations have also been resorted to. Theoretical developments on mourning, the study of death, the ways of dying and notions about the body are included in this paper. The intensive medicine technology generates the illusion that the deceased is alive and maximizes the family emotional confusions. In these circumstances the donation requisition for anonymous beneficiary is presented, and the grief begins. These considerations triggers some queries about the new concept of death set up by technology changes and the request of donating parts of a loved being body changes the form people carry the grief process and experiences of these persons. It could be observed some parsimony about this way of dying. The death body continues connected to some devises, which generates the illusion of continuing alive. In a society where the death was moved out from daily life, medical science determines the moment in which it occurs, and informs as such to familiars. Knowledge about death does not belong anymore to community. It is said about it with words offered by science. This so technical community began to take Han as a potential candidate who had cheated on his paper. By applying Melvin Polnner’s concept ‘Mundane Reason’ to the analysis of Han’s controversial claims, this study aims to explain the self-evident ‘Mundane Reality’ in scientific community and scientists’ efforts to preserve it. When Han’s results cannot be replicated, it offers no occasion to question the law of experimental repeatability but only gives scientists a chance to doubt on Han’s academic ethics. The methods this study has followed are focus group and in-depth interviews, which include interviews with main participants of the experiment and scientists who have shown their attitudes towards Han’s controversial claims.

Contesting ADHD: Controversial disorder and health social movement

Fan-Tzu Tseng, Academia Sinica, Taiwan

In the last two decades, numerous studies have paid attention to the relationship among patient organizations, social movements, and biomedicine, and particularly focused on how these social movements related to health issues intervene the politics of knowledge production of the disease, which bridges the gap between professionals and lay people, science and politics, and thus initiates a new mode of contestation. In Taiwan, there are four distinct social worlds (Clarke and Star 2008) (namely, child psychiatrists, patient organizations for parents of children with
Attention Deficit/Hyperactivity Disorder (ADHD), an advocacy group against over-diagnosis and over-prescription of ADHD, and an anti-psychiatric organization funded by the Church of Scientology) involved in the health movement around the controversy of ADHD. Each social world has different perspectives of ADHD and thus acts diversely. This study explores how these social worlds engage in the production and circulation of the knowledge on ADHD, and examines the manner in which their interactions shape the global agenda of this broad health movement. Based on archives and interviews with key actors, this study analytically places ADHD in the center and then moves through the specific perspectives on it of each of these major social worlds involved in this health social movement to map their heterogeneous relationship with the mainstream psychiatric knowledge, therapeutic modality, and educational accommodations regarding ADHD. Furthermore, this study examines whether and how this health movement creates challenges to the authority of biomedical knowledge and practices of ADHD, and shapes the public understandings of childhood deviants in school.

The East is "Scientific": Scientists, the State, and Credibility Crises During China’s GMO Controversy Abigail Coplin, Columbia University, Department of Sociology

Biotechnology is situated in the blurry jurisdictional realm between “politics” and “science” that assesses risk, indeterminate futures, and ethical conundrums. Thus, experts, politicians, and society must negotiate thecredibility of different claims regarding the technology. While China initially embraced genetically modified organisms (GMOs), vociferous controversy destabilized this consensus. Drawing on 37 interviews with key actors, 11 months of field-research, and textual analysis Chinese media sources, I leverage this controversy to make a dual-pronged argument. First, I show how the strategies employed in the construction of China’s agrobitech sector shape the unusual dynamics of the controversy. The Chinese state and its scientific allies have tried to “purify” GM-foodstuffs by portraying these crops and, by association, themselves, as national products tasked with rescuing the nation from starvation and foreign dependence. The critical idioms articulated around GMOs mimic these values and vocabulary, and thus, reproach state legitimacy. Second, I use the controversy to expose the instability of the co-opted expert position in a technocratic, authoritarian state. “Science” has become the dominant political ideology of contemporary China. This places China’s GMO scientists in a difficult position. While researchers’ ties to the state have afforded them unprecedented influence over China’s developmental trajectory, their politicized professional identity has also undercut their ability to make credible scientific claims in public controversies and made them targets of public censure. Overall, I show that while the Chinese Communist Party-state (CCP) seeks to harness science and technology as a legitimizing ideology and economic driver, semi-incorporating them within the state also gives rise to new, often unintended, dynamics that the party-state must address. Concurrently, while the state’s co-option of science and technology expands experts’ influence and opportunities, the experts become politically tainted by these legitimacy struggles.

The Case of and Precaution against Disguised Human Organ Trading yang tongwei, Shandong University

In the practice of living organ transplantation, there’s an important need to identify and prevent the disguised trade of living organs. The trade of organs may occur among relatives or non-relatives. Organ trade among non-relatives includes transplantation between fake relatives and illegal underground transplantation. The donors’ donation in the trade of relatives is mainly motivated by material benefits. There are ways to prevent disguised organ trade: enhance public awareness of life and educate the public to cherish life; crackdown on the sale of human organs; improve Hospital Ethics Committees' ability to review organs transplantation.

Chair: Fan-Tzu Tseng, Academia Sinica, Taiwan

190. Roundtable Workshops
11:00 to 12:30 pm
Sheraton Boston: Floor 2 - Grand Ballroom

190-1. Eating Beside the Human: Intercalary Exchanges on Food’s Thresholds
Roundtable Workshop
What can be learned from and about food by exploring the boundaries between eating and feeding, the eater and the eaten, and the natural-cultural environments that give potency and meaning to these exchanges? This roundtable asks this question through empirical examination of the situational porosity of borders. We study placentas, medical ventilators, glucometers, pet food palatants and biodynamic vineyards to understand when borders open or close, and what is or is not allowed or made to pass through. Throughout the discussion, panelists zero in on the thresholds — liminal interfaces between porous and non-porous boundaries that delineate, contain and connect bodies, communities, environments, and national polities. The analytic of thresholds developed by the panel marks boundaries as portals and as barriers, calling bodies – human and otherwise – into question. This roundtable workshop will be experimentally structured to reflect and extend academic concern for thresholds through what we are calling ‘intercalary exchanges.’ We use this term, taken from botanical sciences as a descriptor of spaces between root and flower, to articulate the conjunctures that arise simultaneously between and within our objects of concern. Drawing on core concepts and methods from science and technology studies, these intercalary exchanges will speak directly to anthropological questions of the human: the biological contours of human life forms queried by metabolic, epigenetic and microbiotic research, as well as in the desires, rituals, relationships, exchange systems and other elements they implicate. Panel discussion will highlight conceptual tensions concerning human/non- or not-quite-human relations, and other analytic possibilities of eating’s thresholds.

Participants:
Making Agribusiness Palatable: Pet Food, Breath, and the Trade in Industrial Sense Impressions Alex Blanchette, Tufts University

My contribution to this roundtable on thresholds analyzes how the ingestions of non-humans ripe through the ways that humans are made to eat. My case study is based on the mid-1990s development of pet food palatants, flavoring additives derived from (formerly discarded) hog lungs that are designed to compel cats and dogs to rapidly ingest yet other waste products of factory farms. Tracing the materialization of hog breath from the uniformly abysmal airs of monocultural indoor confinement farms, through to their reduction to uniform flavoring vehicles in factories, this discussion suggests how the living conditions of multiple species become bound together in food. Three flavoring corporations now compete for monopoly control over domestic pets’ sense of taste using these chemically-modified hog lungs, and their engineering of non-human sensory experience has the effect of sustaining and deepening contemporary American models of industrial meat. In intercalary exchange with Harris Solomon, this talk aims to think about how breath is concealed and channeled in ways that conjoin and separate distinct atmospheres. Based on further conversations about this workshop’s broader project with Hannah Landecker, I discuss how industrial food is being made reducible to its chemical components, in ways that can bring human and non-human eating and their attendant sciences into tighter spheres of mutual influence.

On Life Support Harris Solomon

My engagement with the roundtable probes its central theme of thresholds across several different but intersecting frameworks of knowledge and practice. I share with Alex Blanchette an interest in forms of living that permeate the domain of human and non-human space, and with Emily Yates-Doer the question of the work it takes to animate a living body. My case study is an intensive care unit in a public hospital in Mumbai, India, and my object of interest is a mechanical ventilator. First, I question the relationship between the central object of artificial life support (a ventilator) and its most close-at-hand expert form of medical
practice (anesthesiology). I then consider the ventilator through the science of nutrition, where being breathless is still as critical a substance as it is in physiological terms, yet it also takes on qualities of food. Finally, I conclude with reflections on the ventilator through a third knowledge framework, that of urban environmental science. This is an expert knowledge concerned with the context of air pollution, and it suggests that freely breathing in urban India — whether at home, on the street, or in the hospital — is increasingly deathly. Across these different frameworks, and in conversation with others in the workshop, I consider different arrangements of expertise, bodily materials, and atmospheres, along with their limits of living and dying.

The Placenta: An Ethnographic Analysis of Nourishing Relations Emily Yates-Doerr

I contribute to this roundtable through two conversations. Harris Solomon and I bring together the objects of the hospital feeding tube and the placenta to think about the selves and the others — and lives and deaths — produced by processes of chemical nourishment. Amy Moran-Thomas and I consider the question of how to locate diabetes in ‘actors’ that are on one hand spread over ecological, planetary, and cosmological, and on the other shore up through bodily boundaries. In both conversations, my concern for placental relations, allows me to articulate a concept of distribution in which activity unfolds across an object whose form is a ‘sphere with sides.’ I raise questions about how to trespass boundaries in a way that both breaks and responds to their divisions.

Animate Thresholds: Diabetes and Planetary Health at the Edge of the Sea Amy Moran-Thomas, MIT

This paper contributes to the roundtable by approaching the analytic of thresholds with a focus on how they are animated. I draw from observations of diabetes experiences in coastal Belize, where eating is bound up with questions of ecological toxicity and mutating landscapes. Reflecting on different notions of thresholds across ethnographic theory and science and technology studies, I engage with two panelists who take up related questions. Emily Yates-Doerr and I co-consider our work around diabetes in two adjacent countries, thinking about metabolism across borders and the ways different boundaries — bodily, state, institutional, technological, ecological, and planetary — are in turns transgressed and policed. Deborah Heath and I discuss how agricultural regeneration is unevenly conceived and enacted, pondering her engagements around “slow science” and “metabolic rift” within food’s thresholds.

Cosmologies, Ontologies and A Gentle Empiricism: Biodynamic Viticulture in New Zealand Deborah Heath, Lewis and Clark College

Biodynamic vintners grow wine grapes following astrological calendars, using homeopathic teas and esoteric composts along with attentive stewardship of plant, animal, and microorganisms in the vineyard. Developed in the 1920s by Rudolf Steiner, biodynamic agriculture rejected emerging chemical-industrial agriculture, presenting the first certified organic agricultural protocols. It has been marked since its inception by a fraught tension between the scientific and the spiritual central to what’s come to be called the ontological turn. This paper, in conversation with Amy Moran-Thomas’s contribution, considers the animate ecologies leading either to increasing environmental precarity or to survival strategies within the present moment in the capitalist world-ecology that some call the Anthropocene. In alliance with those in feminist STS who contemplate the intertwining of more-than-human socialities with an ethics of care, I consider how biodynamic viticulture exemplifies and extends a vision for transforming landscapes at the edge of extinction. From its practitioners’ perspective, biodynamics’ calendrical cycles link celestial and terrestrial realms through practices of engaged observation that Goethe called “a delicate empiricism,” a participatory, phenomenological science fully embracing the sense of wonder and mutuality absent in many critiques of rational-analytical science. Biodynamics, I argue, illustrates a path toward what Stengers calls “slow science,” which offers a salutary opportunity to step back from the time-space framework that besets industrial-capitalist agriculture and its long history of extractive practices. Here, the paper joins a conversation with Hannah Landecker about disruptions in metabolic relations from plant and animal microbiomes to capitalist world-ecology.

Chair: Heather Paxson, Massachusetts Institute of Technology

190-2. Zbola and the (in)Sensibility of Death

Roundtable Workshop

Two of the most recent global health issues have been the infectious diseases of Ebola and Zika. If sensibility is the “ability to grasp and to respond,” then Zbola is a case of international insensibility that is both direct and fathomable. Through critiques of rational-analytical science. Biodynamics, I argue, illustrates a path toward what Stengers calls “slow science,”

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exacerbated by a historical distrust among Liberians towards members of the medical community and government officials. Given that distrust of government and medical authorities was a key factor in the spread of the disease in West Africa, Minneapolis/St. Paul and the surrounding suburbs provide a unique point of comparison for examining the process of information transfer among and between the expat Liberian community, medical personnel, and other residents. We examine how different groups of people tasked with reaching diverse and distrustful groups received and circulated information about the infectious disease, how they prepared to deal with it, and what kinds of actions were viewed as reasonable and acceptable both personally and at a policy level. To do this, we use data gathered from informal, open-ended interviews conducted over the summer and fall of 2015 with officials working for the Minnesota Department of Health as well as actors working for a number of non-profit organizations, but primarily the Minnesota African Task Force Against Ebola. Largely recognized as a success story, the Minnesota response to the Ebola health crisis offers a number of important lessons for public health and government officials alike.

Zika Virus in Mexico: Its Social Aspects With a Gender Perspective Ana Pandal de la Peza, Universidad de las Americas Puebla; Leandro Rodriguez Medina, Universidad de las Americas Puebla
There is a great number of scientific investigations dedicated to analyze the Zika virus, especially in the context of the state of emergency declared by the World Health Organization between February and November of 2016. Nevertheless, they have two important gaps. First, they are carried out under epidemiological and public health frameworks, but not with an STS perspective. Secondly, only occasionally the focus is on the situation of health in peripheral countries. This paper is a product of an ongoing research started in June 2016 by an international team that includes members from the United States, Brazil, Argentina and Mexico, founded by the National Science Foundation, and it comes to fill this void. On the one hand, it studies the preparedness of vulnerable groups, such as pregnant women, inhabitants of endemic areas, and the elderly, in order to confront the disease and react to governmental campaigns on the subject. On the other hand, it focuses on Mexico, a country that saw the number of Zika cases grow exponentially, from just under 100 at the beginning of 2016 to more than 7,000 at the end of the same year. Besides, this paper aims to include a gender perspective by taking a detailed look at women's strategies for dealing with the disease and identifying their perception of it and how they prevent it.

Chair: Wesley Shrum, Louisiana State University
Discussant: Wenda K Bauchspies, NSF

191. Historical (In)Sensibilities II: STS and the History of the Present and the Absence
Traditional (Closed) Panel 11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Hampton A
Throughout the past decade, the fields of STS and the history of science and technology have increasingly engaged in largely separate debates. This is curious, because STS and the history of science share a common genealogy and still many overlaps in topics and methods. History (or historical settings and case studies) has stimulated STS for decades, and practices/modes of temporalization traverse the STS literature as a matter of course. Empirical matters in STS such as in climate science, geology or biosciences are often historical in themselves. But at the same time, some scholars experience that inflating STS concepts with history does not resonate with the concerns of the field. The goal of this panel is to rekindle a debate between STS scholars studying contemporary phenomena and historians of science and technology. We invite papers which address, for example, the following questions: How to address historicity in research on contemporary phenomena in the here and now? Is history about the past or about the present? What can STS learn from debates in history, for instance over historiography? How do we deal with versions of the past, their presences, half-presences or hauntings in STS concepts? We invite contributions that reflect and address such frictions, as they engage with different empirical materials.

Participants:
Understanding the Opioid Epidemic: A Genealogical Analysis of Pain Management Melina Sherman, University of Southern California, Annenberg School for Communication & Journalism
On November 1, 2011, the U.S. Centers for Disease Control and Prevention issued a press release that warned of a mounting death toll: The rate at which Americans were now overdosing (and often dying) from prescribed opioid medications had reached ‘epidemic levels,’ killing more people than car accidents, more than cocaine and heroin combined. Accounts of the increasing numbers of opioid-related overdoses and deaths typically rely on medical explanations, which attribute transformations in prescribing habits to an evolution of medical knowledge regarding the efficacy and safety of opioid medications. Such explanations assume a linear evolution in medical thinking and therefore only capture only part of the bigger picture: In this paper, I apply a genealogical method, drawn from Foucault’s “history of the present,” to chart some of the major historical currents that have shaped the discourses and practices surrounding the management of pain in the United States. As a non-linear form of analysis, genealogy enables us to recognize the ways in which pain and its management have been defined both inside and outside the domain of medicine – in culture, politics, and society more generally. As I contend, the ongoing opioid epidemic has been conditioned by the twinning of medical and moral discourses that establish pain within a distinct field of medical expertise and its management as a fundamental human right. These discourses have legitimated the uncontrolled prescribing of opioids as a solution for different kinds of pain – a practice which is at the root of the current opioid epidemic. This paper contributes to STS scholarship by addressing the material effects of interconnected systems of knowledge and practice in medicine, politics, and society.

Meteorological Frontiers: Climate Knowledge, the West, and U.S. Statecraft, 1800-1850 Zeke Baker, University of California, Davis
This paper advances an analytic framework for studying climate knowledge, arguing that the dynamics of how scientists measure, know and construct the category of climate articulate with practices of government (cf. Foucault 1991, 2008) by a process of ‘meteorological government.’ I define meteorological government as a process by which climate knowledge develops in and through ways of constituting, categorizing, calculating meteorological and social orders simultaneously. I develop and employ this conceptualization in order to help explain how key developments of climate knowledge were co-produced with elements of US statecraft in the period from 1800 to 1850. I then discuss how the analysis suggests we might recover the ‘impurity’ of climate as a category and instead reconstrue the dynamics of climate knowledge generally in terms of its governmental significance. With such an approach, three domains of statecraft emerge as significant to the dynamics of climate knowledge over the 1800-1850 period: military-administrative concern with disease and discipline among soldiers and state agents; national-territorial expansion; and aspects of a “racial state” (Ormi and Winiant 2015). Using diverse primary archival print sources, in this essay I link these respective domains to major developments in climate knowledge—medical meteorology, meteorological statistics, and what I term ‘racial climatology.’ I therefore trace how efforts to advance climate knowledge articulated with strategies to govern (1) soldiers’ bodily processes and discipline in a context of bureaucratization of the U.S. Army, (2) Western territories in a context of territorial acquisition and providential nationalism, and (3) a stratified population ‘legible’ by biological
understandings of racial difference and destiny. The paper makes two contributions. The first concerns existing historiography of the atmospheric sciences, and the second concerns the leverage gained through a genealogy of ‘meteorological government’ in reconstructing recent developments linking climate knowledge and power. Both hold broader import into existing analyses and approaches to state-science coproduction. For the first, existing accounts of meteorology and climate science have often sought to reconstruct developments in these fields through an internalist approach, which only partially captures the interpretive contexts and political significance of climate knowledge over the 1800-1850 period. For the second, I situate a recent turn towards climate-change “adaptation” as an emerging form of meteorological government, drawing briefly from the author’s analysis of a US policy nexus in which climate change has recently been treated as a threat to national security. Through a geo- and biopolitical logic of making future climatic-change scenarios legible in the here-and-now, a paradigm of climate adaptation and preparedness seeks to secure a governable socio-climatic order and hence secure new forms of meteorological frontiers.

Solar Energy Technologies: Contingency and Trajectory of an Intermittent Duration Neglected. Cross Check of History of the Technology and STS. Nelson Arellano, Universidad de Tarapaca

STS and history of the technology can develop a fruitful relationship connecting their interdisciplinaries fields, this somehow it was demonstrated with the interaction of STS and history of environment and their historiography of absence, constructivism, expertise, and boundary-works. It seems proper not only joining and to mix historiographical with social theories, that otherwise remains isolated, but that we need built a more thick dialogue between social sciences, humanities and arts. An approach to the history of solar technologies was built throughout sources of visual representations of technologies, traditional archives, and eyewitness. All these material, from several places from the world, composed a body-expedient that demonstrate at the same time that: only the alive people make History, and that we need search and have a more deep knowledge about viable alternatives instead of those technologies perpetuated by the selection. The problem of intermittent duration of solar technologies allow us to discuss different paths in order to understand not only contingency but trajectory, and recover the sense of ‘sense’ about our concept of the time to help to explore again sensitivities of tecno-somatic-systems.

When Doors are Removed for Our Own Safety. A Historical Case Study of the ‘Failed" Question Mark" Telephone Booth Mette Simonsen Aalborg, Aalborg University Copenhagen

Information and communication technologies (ICTs) are often understood as increasingly private and personalized. From reading the national newspaper to the individualized Facebook timeline; from talking on the shared household landline telephone to the personal smartphone. However, a historical case of the ‘failed’ telephone booth "The Question Mark" complicates this narrative of increased access to private ICTs. The telephone booth held an important position in 20th century public infrastructure as part of everyday life communication routines as well as situations of emergency. Sparked by a 1980 design competition for a new telephone booth for Copenhagen, however, a new communication space emerged through a controversy that mobilized new publics and issues. These publics and issues related to terrorism, disability and design, but excluded other users and concerns. Through the case, we see the making of a new public communicative sociability, as devices were designed for safety and accessibility rather than comfort and privacy. The case study is based on archival material and interviews with involved actors, and contributes to architectural theory’s recent involvement with ANT and controversy mapping (Yaneva, 2012). By suggesting we open the ‘black box’ of a failed design, this presentation also draws on a familiar schema in STS. I argue that such continued engagement with matters of the past is among cornerstones of STS’ efforts to ‘expose sources of uncertainty and contingency that are hidden by the successful genesis, stabilization and dissemination of facts and artefacts’ (Lynch, 1998).

The Exploration and Representation of the Technological Value of Industrial Heritage in China HUI LUO, National Academy of Innovation Strategy, CAST; Hongwei Wang, National Academy of Innovation Strategy, CAST; Xiangdong LIU, National Academy of Innovation Strategy, CAST; Xiang LI, National Academy of Innovation Strategy, China

The technological value is not only the core value of industrial heritage, but also the intrinsic quality of its which make difference from other types of cultural heritage. China’s industrial heritage, which witnessed the modern industrialization of the country, is important relic of the technical progress and innovation information. So only based on the study of technological value can we make accurate value judgement of industrial heritage, conserve them well and take great advantage of them. Based on the argument of technological value and our investigation in recent years, it is discussed in this article about the general situation, mode of utilization and exploration and representation of technological value of industrial heritage in China. Consequently, it is deemed that in China’s distinctive STS background, the history of technological innovation should be the fundamental clue to protect and utilize industrial heritage. Furthermore, the exploration of ideology, methodology and environment of innovation contained in industrial heritage will help to provide historical references to the industrial innovation in China.

Chairs: Susanne Bauer, University of Oslo
Nils Guttler, ETH

192. Re-assembling urban life: STS and the making of sustainability II
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Hampton B

Making cities sustainable is high on policy agendas, from local municipal plans to international agreements. The issue is how to achieve this goal, but also to reach an understanding of what the goal entails, and how it feeds into the production of a different kind of city. How do efforts under the banner of sustainability influence the everyday life in cities? Which kinds of knowledge regimes are involved in transforming abstract ideas about sustainability into concrete policy? What are the dominant understandings of change, rationality and agency that underlies current efforts to transform urban spaces? This session presents research that illuminates efforts to re-assemble city life to achieve sustainability transitions and how STS provides intellectual tools to make sense of these efforts. These efforts includes transformation of transport systems and technologies, densification, citizen engagement, accounting technologies, sustainable energy, and “smart” designs. The session will make use of STS approaches to investigate the construction of ideas about sustainability and socio-technological approaches to realize these ends. In this way, it will demonstrate the potential of STS to sustainability transitions but also critically scrutinize the need for new theoretical developments.

Participants:
“This is what is coming”: Sociotechnical imaginaries of the energy future. A case study of Norwegian early adopters of solar panel technology Gitte Hanssen Koksvik, Department Of Interdisciplinary Studies Of Culture, Norwegian University Of Science And Technology.

This panel invites us to study the understandings of change, rationality, and agency that underlie current efforts to transform urban spaces. This paper aims to do so by looking at an important component of the move toward a greener future and the “making of sustainability”, namely the transition to renewable sources of energy. In an ongoing study of Norwegian prosumers, we have conducted interviews with members of households in the urban...
central region of Norway. The households in question have installed solar panels as part of a demonstration project initiated by their energy providers. Despite demonstration projects typically being framed in terms of sustainability and the “green shift”, overt environmental concerns are rare among the participants. Moreover, they exhibit little or no (short-term) expectation of financial gain to come from the arrangement. This suggests something about the vision of change and the type of rationality that underlie these early adopters’ motivations for acquiring solar panels, for participating in a demonstration project, as well as the sense they make of the technology. Indeed, different envisionings of social order and of the future seem to be of crucial importance. The concept of sociotechnical imaginaries is often employed to help elucidate why certain technologies and paths are chosen over others, and therefore stands out as a useful analytical tool. Moreover, although sociotechnical imaginaries concern the future, they are not simply futuristic. They are also an echo of the past, a manifestation of collective memories that influence what we consider desirable, good, or even a possible future. Sociotechnical imaginaries are often associated with policymaking and the exercise of state power, and analyses have typically been made from the perspective of experts in the energy domain. This paper aims to fill this gap by emphasizing the relevance of sociotechnical imaginaries in the case of “ordinary” individuals and households and their decisions concerning sustainable energy adoption.

Pioneering new energy practices: Motivations and future imaginations of prosumers in Norway Ingrid Ballo, University of Bergen

Imaginaries of future ‘smart’ energy technologies and systems accompany the on-going introduction of so-called ‘smart’ electricity meters. These imaginaries include ideas of a more sustainable energy production and consumption: One of the core challenges ‘smart’ technologies and solutions are meant to solve is to connect decentralized renewable energy production to the grid. Following this, a future development towards an increase in prosumers; consumers producing renewable electricity at a household level, has been a central part of the Smart Grid vision in many countries. In Norway, however, becoming a prosumer entails being a ‘bottom-up’ pioneer in a national energy context characterized by institutional and economical barriers for such developments. Prosumer households are places where sociotechnical imaginaries of future Smart Grid energy transformations become spatially embedded and materialised. The prosumer household is a space being actively and jointly created and constructed, where sociotechnical energy imaginaries – connecting diverse actors from different domains in the nexus of energy and digitalisation and reflecting their wide range of perspectives and interests – meet lived experience and social (energy) practices. This paper conceptualizes the technological infrastructure in prosumer households as situated ‘boundary infrastructures’, embedded in other structures, social arrangements and technologies and both shaping and being shaped by conventions of communities of practice. The paper is based on empirical data from interviews with prosumers and actors who work with prosumer policies, regulations and frameworks, as well as discourse analysis of relevant policy document and reports. It describes Norwegian prosumers’ motivations for pioneering a change in energy practices and production, as well as their (alternative) imaginations of urban energy futures. It outlines a mismatch between these “bottom-up” situated motivations and imaginaries and the dominant sociotechnical imaginaries of the future Smart Grid at the national scale.

Urban interconnectedness in a rural geography. The role of prosumers and energy citizenship William Thordsen

Studies on energy citizenship, and its parent field of material publics, is a burgeoning topic that deals with the enrolment of regular, every day settings and actors into politics proper. This is arguably a setting in which the line between politics and Politics (with a capital P) becomes blurry. Arguably, it is also a less fatalistic view of the ways in which technology becomes embedded in life to serve a greater Political purpose than, say, inferring the influence of a kind of subjugating mechanism like for instance discipline. It is also a setting in which calling for vague concepts like “more democracy” and “inclusive design” as a solution to pervasive and potentially controversial technology rollouts becomes obsolete. This study is a look into a specific context in Norway where what can be considered a Political problem – the energy security of an urban sprawl from a single electricity distribution interconnector serving an island municipality – is being turned into a politics of everyday material engagement. In short, the tiny connector serving the island community of Hvaler is fast becoming an increasing liability as capacity demand steadily increases. A Political solution to this would be to spend public funds to increase the connector capacity. Another solution is to recast the community members into energy citizens in their everyday setting. With the help of technological assets such as solar PV and monitoring, combined with awareness activity and subsidy grants, a material publics has been defined that could help solve Political issues without exercising or calling upon traditional Political involvement. Nevertheless, when defining moments of material political engagement, are we not still required to keep in mind the Political issue of how to distribute responsibility throughout society? This paper will seek to discuss this issue, in order to establish if and how it can be resolved within the concept of material publics.

“Green” and gendered – Electric car culture in urban energy transitions Martin Anfinsen, Norwegian University of Science and Technology

After a period of substantial governmental incitements, Norway has emerged as one of the world leaders in the transition from carbon based to electric transportation. With a recently reached market share of 37% of new cars sold, it seems increasingly clear that these vehicles, and the surrounding infrastructure, are set to play a crucial role in the sustainable transformation of urban spaces in the foreseeable future. I seek to investigate the gendered facets of both this technology, the surrounding energy cultures, and the possible consequences this might have for the planning of urban energy transitions. This work will combine central theories from both within the field of STS and gender studies to better understand these transitions. Placed in the intersection of the newfangled and traditional, the electric vehicle can be characterized by an interesting combination of new promises, and stabilized modes of usage, as imaginations of new consumers might clash with old assumptions and hegemonies. Shifts in the consumption of energy will necessitate increased knowledge of potentially gendered aspects of energy cultures, and what it is that is mobilizing men and women to engage in less carbon intensive technologies. Through this, we might find gender roles to be a crucial component in both the understanding and facilitation of urban energy transitions.

Chair: Tomas Moe Skjølvold

193. STEM Education II: Reconfiguration within and Resistance to the Rise of (alt)Right-Wing Governments

Traditional (Closed) Panel

11:00 to 12:30 pm

Sheraton Boston: Floor 3 - Jefferson

This sequel to a 2015 open session looks at schools through an STS lens as sites of technoscientific occupational and ideological production. Since 2015, some state policies have shifted towards more fractious, nationalist, and conservative directions, e.g., in US, UK, and Turkey, simultaneous with a redoubling of neoliberal commitments globally. How these systems interact in the formation of STEM (science, technology, engineering and mathematics) educations is the subject of this panel. We seek papers that explore, interrupt, rearticulate, critique STEM education policy or practice with in the contemporary contexts. In the 2000s STEM emerged as an articulation of traditional distinct disciplines. STEM promoted neoliberal, capitalist, and militarist logics/priorities, e.g. in its emphasis on human
capital, promotion of market hegemony in the purposes of science and mathematics, and its fetishization of entrepreneurial subjectivities. Political ruptures such as Brexit in the UK and the election of Donald Trump in the US signal a shift or retreat in the circulation of these discourses. Even earlier, the passage in the US of Every Student Succeeds Act signaled power’s operations away from central managerialism. With rising conservativisms, governmental power is shifting to networks that challenge the climate change, promote resource extraction, and endorse religious ideologies promoting conservative national, racial and gender orders. This panel invites papers that examine both the articulation of STEM educations to this new ideoscape and that examine either strategic or unconscious resistance to those logics at the levels of policy or practice through philosophical, discursive and/or empirical work, globally.

Participants:

Tracing Articulations of Science Education in the Trumpocene
Matthew Weinstein, Univ. Of Washington-Tacoma
This paper explores the complex articulations of ideology, politics, and practice of science education within changing federal policy and ideology in the Trump administration. It draws on policy, social theory, and previous work examining the Next Generation Science Standards (NGSS) in the U.S. to prognosticate how the curricular landscape of science education may change in the wake of the Trump-Pence election. I present an STS analysis of science education as scientific social reproduction. I build on earlier work examining NGSS’s embraces of market-oriented ideology as STEM and conservative resistance to core neoliberal ideas that threaten institutional science’s authority. I explore four likely shifts in science education policy and practice: the appointment of fundamentalists in political key positions; shifts in authority and policy to the states; increased politicization of science teachers defending their teaching and support for science—the latter largely in the conservative terms I noted earlier. Finally, science education will be weakened and marginalized as it has been over the last 10 years by poor funding of the natural/physical sciences. The continuing crises in most sciences will be accelerated, which will accelerate the STEMification of science—including a shift from science to engineering, since science qua science will cease to be persuasive to students given the manufactured crisis in funding and shortage of science jobs. The paper concludes with an alternative fabrication of how science teachers might reimagine their work as more explicit resistance to both Trump’s conservatism and the science establishment’s desperate attempts to regain epistemic authority.

Uncovering the STEM-ification Governance Networks: The Story from Georgia
Ajay Sharma; Cheryl Hudson, University of Georgia
In western developed societies, implementation of public policies is being increasingly formulated and implemented by complex, dynamic networks involving an eclectic mix of public, private and non-governmental organizations and actors. Because these kinds of networks are increasingly usurping many of the traditional roles of the government in governing the society, they have been labeled and studied as governance networks in recent years. STEM initiatives offer one such good case of the growing prominent role of governance networks in development and implementation of educational policy. In this paper we conceptually analyze the STEM reform efforts, with particular reference to the state of Georgia, from a network governance perspective to highlight the underlying complex relations of power and rationalities that sustain such relations. Our conceptual review is supplemented by an extensive document analysis that allow us to map the emerging network topography of STEM networks in the state of Georgia. In governance networks the decision-making is generally assumed to be based on a reflexive rationality that emphasize the centrality of consensus decision based on reflexive interactions, on-going negotiations and building of mutual trust. In contrast, we make the case that the success of STEM reforms can be better understood if we examine the decision-making in the governance networks behind STEM reforms as influenced by different modes of rationalities at different ontological levels. Further, we position the use of governance in and its fetishization of entrepreneurial subjectivities in educational reforms as indicating the hegemonic dominance of knowledge capitalism over traditional industrial age capitalism in western postindustrial societies. Finally, our analysis shows the opportunistic use of discourses other than or in addition to neoliberalism by the knowledge capitalist system to legitimize and maximize the material interests of the elite. We expect that critical analyses such as ours offer a kind of critical understanding that leads to more successful progressive strategies to counter STEMification of public education.

STEM Education in Right-wing Populist Contexts
John Bencze, Ontario Institute for Studies in Education, University of Toronto; Lyn Carter, Australian Catholic University, Melbourne, VIC, Australia
All education enacts some political agenda, whether implicitly or explicitly. A recent and prominent example of this is ‘STEM’ (Science, Technology, Engineering & Mathematics) education, many versions of which apparently perpetuate neoliberal interests. They tend, for instance, to prioritize training of technical experts while de-emphasizing students’ critical analyses of these fields and socio-political actions to address perceived personal, social and environmental harms. Such apolitical approaches to STEM education seem to accentuate in intensified, moreover, through recent emergence of right-wing populism — with perhaps the most dramatic example being election of Donald Trump to the US presidency. Although definitions vary, many such movements appear to be reactionary — emphasizing return to an earlier, often idealized, status quo, perhaps epitomized by Trump’s claim to “Make America Great Again.” While many of his pre-election promises, particularly those involving social conservatism (e.g., immigration policies), appear to be realized, many others seem rhetorical — intended, like the proverbial Trojan horse, to construct idealized images of a utopian future that may distract voters from awareness of a deeper, less populist, agenda. Indeed, it is apparent that, ironically, while many voters saw Trump as saving them from economic destitution (e.g., loss of jobs and job security) resulting from neoliberalism, many of his cabinet appointees have strong capitalist ties (e.g., Goldman Sachs) and he has further deregulated the financial industry and reduced taxes to the rich. Such moves may, actually, contribute to further rich-poor divisions. Wealth sharing does not appear to be part of this agenda. It is claimed that real power in the US lies not with elected officials but, rather, with a ‘deep state,’ a network of powerful non-governmental individuals and groups prioritizing profit concentration. Apparent keys to such capital accumulation have been STEM fields — which appear to have long been used in ‘knowledge economies’ to assist neoliberals in, for instance, promotion of consumerism. Cell phones are seen as ‘sleek’ and ‘sexy,’ for instance, often distracting consumers from awareness of poor working conditions of labourers. Such subterfuge seems destined to continue. On the one hand, phenomena of the world (e.g., weather patterns) may be translated (as ‘science’) into idealized representations (e.g., denial of human contributions to climate change) while, on the other hand, engineering generates — with increased deregulation — technologies (e.g., petroleum-fueled vehicles) that further enrich capitalists. Accordingly, as to be discussed in this presentation, students need education in science and technology studies emphasizing current matters of political economy and, associated with that, liberatory pedagogies prioritizing social justice and environmental sustainability.

Aesthetics and Political Resistance for Science Education
Jesse Thomas Bazzul, University of Regina; Sara Tolbert, University of Arizona
Disciplines such as the Arts, Language, and Philosophy have taken the study of science to STEM education seem to be intensified seriously in terms of the importance of orientation, experience as well as how and why certain arrangements of things can exist (and not others). However, thinkers such as Jacques Ranciere and Sara Ahmed have stressed
the political importance of orientation, its valuation, description, and force in the world, or Aesthetics. What I propose in my paper discussion is how orientation and aesthetics is one dimension of the political fight for science for communities, instead of the production of (bio)capital. The political power of aesthetics to science teaching and learning is three fold: 1) In its power to disrupt the logic of capital flows and the logic of what Foucault calls biopower; 2) In its creation of new orientations for science teaching and learning; 3) How specific orientations and aesthetics of science and science education are dictated--or are refused through an appropriation or recreation of these aesthetics for political purposes. As a discussion point we will look at the aesthetics of STEM education and whether they benefit the police (status quo), or domain of the sensible; or whether they subvert the grip of capital on STEM. Data will be archival and consist of wide array of discursive and material aesthetic structures and fragments.

The Hopes, Pitfalls and Redemption of Transdisciplinary, Online, Open Science: Developing a Green Neuroscience Curriculum Paul Tsang, University of Toronto; Ximena Martinez, Ontario Institute for Studies in Education, University of Toronto; Maria Ikrum, Green Neuroscience Laboratory, Institute for Green and Open Sciences; Ann Lam, Physicians Committee for Responsible Medicine; Elan Ohayon, Green Neuroscience Laboratory

The confluence of citizen-, open-, techno-, transdisciplinary- and multiscale sciences has been promoted as a great new development in education. However, in contrast to promises of openness and inclusion, these approaches not only repeat past errors but may even lead to loss of ground via the circumvention of hard-fought gains in workforce, environmental and ethical regulations. Rather than expose these pitfalls some areas of STS have succumbed to " techno lust" and have been complicit in the cooption. These trends illustrate that the mere inclusion of transdisciplinary, open and collaborative approaches is not sufficient. Ethical aims must be built into the foundation of teaching and practice such that they encompass a critical examination of the goals, biases and impact of science. As a concrete instantiation, we describe the development of a Green Neuroscience curriculum that explicitly places ethical, justice and environmental aims at the forefront. Although this curriculum recognizes the necessity of transdisciplinary, open and collaborative approaches it also acknowledges the inherent threats to justice posed by current neuroscience practices. For example, concerns include corporatization, militarization, animal experimentation, de-legitimization of public education and the erosion of workers' rights, environmental protection, and health and safety regulations. The aim of the curriculum project is thus to build the foundational pedagogical content, tools and mindset that allow for a transdisciplinary critical neuroscience that is ethical in its practice, aims and outcomes. These principles may be extended to other education and research domains to similarly forward social, health, labor, community and environmental justice objectives.

Chair: Matthew Weinstein, Univ. Of Washington-Tacoma

194. Ambiguous Relations and the Politics of Reproductive and Sexual Bodies
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Kent
Participants:
Ambiguities of Abortion: Multiple Realities and Misoprostol in Lima, Peru Rebecca Melanie Irons, University College London

The chasms between biomedical and local understandings of pharmaceutical use are most salient when the question of human life is at stake. In the case of medical abortion using misoprostol, the life in question may be an unborn child, but also extend to the mother. In a context where abortion is illegal and limited to clandestine clinics, such as Peru, local women are particularly at risk of serious complications and mortality from below-standard care. Here, the visibility of self-administered "home" abortion with a pill such as misoprostol becomes arguably more urgent as an alternative to "backstreet" risks. However, interventions aimed at promotion rely on the (mis)understanding that misoprostol is universally perceived as abortifacient; a claim which this paper shows to be flawed.

Research took place over three months of ethnographic fieldwork in a low-income Lima suburb, incorporating fifteen semi-structured interviews with misoprostol users, and close friends/relatives. Using Mol’s theory of ‘multiple realities’ (2003), it is reasoned that a pharmaceutical endorsed abortifacient from a biomedical perspective is rejected as such by indigenous understandings, thus suggesting that this pill is ontologically ‘multiple’, affecting use and acceptance. Abortion is a highly contentious subject in Peru, and that local ontologies are disregarded in policy reflects a widespread insensitivity to women’s experiences of reproductive medical technologies. The assumption that these technologies can be unproblematically transported across contexts is impeded, suggesting that STS scholars must engage with the abortion debate at the level of the pill as it’s constructed by its users, and not just manufacturers.

Making Sense of the Abortion Pill: A Historical Sociotechnical Analysis of RU486 in Canada Patricia Campbell, Red Deer College

More than twenty years after entering public discourse in Canada, the abortion pill (RU486) finally became available in Canada January 1, 2017. By contrast, the pill has been available in France and China since 1988, the U.S. since 2000, and over 45 other countries. This paper provides a historical sociotechnical analysis of the controversy surrounding the development, introduction, and use of RU486 in Canada, focusing on the early years of its public negotiation. Drawing on material semiotics and feminist STS approaches, the analysis examines the sense-making practices surrounding the pill through claims that appeared both in Canadian media outlets and the archival publications of various actors at the time of technology’s emergence. By identifying the various heterogeneous actors, their mobilizations of RU486 and each other, and their contingent alliances, the paper illustrates how RU486 mediates and shapes the communication that attempts to define it. The paper argues that unpacking the ways in which these various enactments and actors established the early setting of the technology is an essential first step in addressing why Canada has been a laggard in making the pill available to women. The study provides a framework for future research as the drug moves from discursive to material practice, development to diffusion, shifting power to those previously only implicated as actors, women as users. Finally, in regard to broader political and methodological concerns, the feminist ethic of nurturance is suggested to address how policy questions around controversial reproductive technologies should be answered and by whom.

Invisible Women: Control and the Gestating Body in Prenatal Supplementation Studies Meredith Reiches, University of Massachusetts Boston

What metaphors govern the science of prenatal nutrition, describing and mediating public health interventions in the transmission of energy, protein, and nutrients from the gestating woman to the developing fetus? On the heels of food rationing during WWII, the UK spearheaded a global effort to generate larger, healthier citizens and colonial subjects among economically disadvantaged and racially minoritized populations by supplementing the diets of pregnant women. I use empirical analysis and close reading of individual research studies and meta-analyses from the 1950s to the 2010s, together with archival documents from the leading UK governmental medical research organization, to examine the context in which these interventions occurred, focusing on two groundbreaking studies in The Gambia, West Africa. These were the only studies to
Fighting AIDS in Taiwan: Revisiting the gift relationship in the case of PrEP in the political economy of the present, the state has played a critical role in the response to the HIV epidemic. The Taiwanese government has allocated significant resources to HIV prevention and treatment, including the implementation of PrEP. The policy of subsidizing PrEP has been widely praised for its effectiveness in reducing the risk of HIV infection, with a reported 99% efficacy when taken daily.

The Vanguard of PrEP project is paternalistic in that it seeks to offer a gift, both in material and financial form, to at-risk gay men. Truvada, a pill, has been heralded as one of the best new drugs, with up to 99% efficacy when taken daily. PrEP has been recommended by the World Health Organization as a way of preventing HIV infection and has been approved by the US Food and Drug Administration for the prevention of HIV in individuals at high risk.

However, the gift relationship of PrEP in regard to its regulatory and sociopolitical effects of cost and moral hazards, and the forces, the Taiwan's current healthcare policies, the making of health citizenships. The Vanguard of PrEP project is paternalistic in that it seeks to offer a gift, both in material and financial form, to at-risk gay men. Truvada, a pill, has been heralded as one of the best new drugs, with up to 99% efficacy when taken daily. PrEP has been recommended by the World Health Organization as a way of preventing HIV infection and has been approved by the US Food and Drug Administration for the prevention of HIV in individuals at high risk.

The Vanguard of PrEP project is paternalistic in that it seeks to offer a gift, both in material and financial form, to at-risk gay men. Truvada, a pill, has been heralded as one of the best new drugs, with up to 99% efficacy when taken daily. PrEP has been recommended by the World Health Organization as a way of preventing HIV infection and has been approved by the US Food and Drug Administration for the prevention of HIV in individuals at high risk.
historical reasons in many countries, the spheres of science and law, although expected to generate “facts” solely on the merit of evidence and rules, independent from all other authorities, are often inhabited by two rather distinct groups who interact minimally with one another in their work. The situation changes significantly when a judicial system is challenged to adjudicate science-intensive public controversies based on conflicting scientific arguments, such as those in the so-called “toxic tort” litigation—victims suing corporations in occupational disease, pollution, food safety, and other issues of toxic exposures. In addition to legal actions, protests and policy advocacy from the grassroots to international levels to tackle problems created by persistent polluters in this industrial age all requires similar initiatives to overcome the science-law divide. STS scholarship can be very useful in such public controversies as “translation” in its multiple connotations having been a staple of our trade. This panel explores historical and ongoing toxic tort cases and related controversies in various national contexts and tries to make sense out of our complex but shared experience. The first session focuses on the respective roles of expert and citizen science in challenging the business as usual of ‘persistent polluters.’ The second session emphasizes the specific function of law and the court system.

Participants:
Class Action as a Trigger for Agency and Environmental Valuation: Yunlin People v. Formosa Plastics Paul Jobin, Academia Sinica
A class action against those responsible for an industrial crime is often the cutting edge of a much bigger battle. If those victims who become plaintiffs are often just a tiny part of a much larger number of people affected, it does not mean that they are specially equipped with the capabilities to address the issue. They must go through a long process before they are able to verbalize what they have been through and turn their experience into a common expertise that can challenge the cynicism of industries and cope with the court’s procedures, which value expert testimony above that of the plaintiffs. But as I argue in this paper, STSers can stimulate the plaintiffs’ agency on the one hand, while making it clear whether or not the science-witnesses from authoritative academic institutions in the United States to testify for it in the Taiwanese court. In this intense (though in slow motion) legal battle, large amount of translation has to be made and contested not only between English and Chinese as court languages, but also between medical sciences and legal concepts, and between civil-law and common-law legal traditions. In this process, events in the US such as those following the 2010 BP oil spill in the Gulf of Mexico come to have their ramifications in debates about occupational diseases in Taiwan. Using participatory observation in the RCA workers’ campaign and the court proceedings, this article discusses the patterns in which meanings are argued and contested across national, disciplinary, and jurisdictional boundaries.

Law and Science in Minamata Disease: Japanese Experience of Social Struggle against The biggest Kogai Atsushi SADAMATSU, Kyoto Koka Women’s College
The purpose of this paper is to examine Japanese experience of Minamata disease. It is the mercury poisoning which developed in people who ate contaminated fish taken around Minamata City, in Kumamoto Prefecture of Kyusyu Island of Japan. It is the biggest industrial crime so that the full scope of its damage is taken in account: health and economic loss as well as the inconmensurable part. These lawsuits aim at resetting new environmental policies by publicizing the cause of the communities most exposed to industrial hazards. This paper is based on a participating observation and in-depth interviews with the plaintiffs of a class action suit filed in 2015 against the petrochemical complex of Formosa Plastics. Located in Yunlin County (central Taiwan), this complex is the biggest emitter of carcinogenic air pollutants throughout Taiwan, but the nearby residents are the most exposed. Additional interviews were conducted with the lawyers, experts, activists and state officials involved.

Reconstructing Genba: RCA Groundwater Pollution, Research and Lawsuit in Taiwan, 1970-2014 Yi-Ping Lin, National Yang-Ming University
This paper analyzes how the first collective action toxic tort in Taiwanese history, “Former RCA Employees’ Mutual Aid Association v. Radio Corporation of America (RCA)” produced a space of deliberation about the causal effects of chronic exposure to organic solvents to human health. The author shows how this space, the collective RCA genba, was reconstructed in research laboratories, at Taipei District Court, and finally, in the judges’ verdict as efforts to understand groundwater pollution took place from various standpoints. Analysis of the media coverage, government files, scientific papers, legal documents, and the Taipei District Court verdict illuminate how a space for contestation was forged in lieu of the closed RCA factory (and RCA’s acquisition by other multinationals). At three different

moments – research about RCA’s activities, the lawsuit, and the verdict – victims, scientists, lawyers, legal professionals, and others, created and contended knowledge related to the effects of groundwater pollution. In examining the processes leading to the 2015 verdict favoring the RCA plaintiffs, this paper shows that the judges reconstructed the RCA genba between 1970 and 1992. RCA offers more than a case study for examining how judges and scientists (acting as experts) engage in boundary-work to construct scientific validity. Explication of the RCA case in the East Asian context has many important social and policy implications considering the tenuous relationship between the presence of factories of multinational corporations as employers and their roles in mediating workers’ health.

Lost and Found in Translation: Contesting US Legal Authorities in a Transnational Mass Toxic Tort Litigation in Taiwan Hsin-Hsing Chen, Graduate Institute for Social Transformation Studies
After a verdict for the plaintiffs in the first large-scale collective toxic tort lawsuit of former employees of Radio Corporation of America (RCA) against the company in Taiwan in April 2015, this groundbreaking lawsuit enters the second round at the appeal court. In defense, the erstwhile leader in the history of 20th-century electronics industry calls both legal and scientific expert witnesses from authoritative academic institutions in the United States to testify for it in the Taiwanese court. In this intense (though in slow motion) legal battle, large amount of translation has to be made and contested not only between English and Chinese as court languages, but also between medical sciences and legal concepts, and between civil-law and common-law legal traditions. In this process, events in the US such as those following the 2010 BP oil spill in the Gulf of Mexico come to have their ramifications in debates about occupational diseases in Taiwan. Using participatory observation in the RCA workers’ campaign and the court proceedings, this article discusses the patterns in which meanings are argued and contested across national, disciplinary, and jurisdictional boundaries.

Chair: Kim Futon, University of California Irvine

196. STS, Critical Design, Critical Digital Humanities II
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 5 - Riverrway

This track aims to bring together scholars working at the intersections of Science and Technology Studies, politically-engaged Design and Making work (including Speculative and Critical Design & Making), and the Critical Digital Humanities, in order to share perspectives on the methods, challenges, and stakes of “doing” STS and the humanities in material and digital form. This track is envisioned as a critical complement to the “Making and Doing” event—where the Making and Doing event affords the ability for STS scholars to showcase their design work, this track affords space for critically reflecting upon the spaces, ideologies, mediations, and politics embedded within and enacted through the intersections of STS scholarship and materially-engaged design work. Possible paper topics include critical analyses of current and previous STS-engaged design and digital projects (including the presenter’s own); reflections on the institutional, infrastructural, and ideological constraints of doing alternative and materially-engaged scholarship; issues of the power and position of scholars designing and making in academic and non-tangentially-academic spaces; potentials and risks of doing interpretive and critical scholarship via technologically-mediated design work; and future directions for STS and humanities design. We are particularly interested in critical perspectives on design from feminist, postcolonial, and queer standpoints, and on design and DH projects, spaces, and methods that specifically address questions of power, oppression, access, ontology, and materiality. We also extend invitations to “making and doing” scholars engaged in STS-related work in intersecting fields, including Media Studies, Literature & Science, and Design.

Participants:

Queer Justice Design: pivoting to, and articulating outsider sensibilities to design new infrastructural knowledge practices

Sarah Moseh, University Of Maryland College Park

When designing new objects or experiences, designers make many difficult choices; yet the design principles they follow (design thinking, universal, and participatory design, to name a few) have already made certain sensibilities and products possible, while rendering others invisible or impossible. Design is knowledge production and it (re)produces particular kinds of knowledge, power structures. The world we live in is designed: our bodies are also designed by the policies, procedures, laws, and histories of the cultures we live in. What then does it mean to ‘design’ our futures, our bodies, and our communities? What would happen if we extended design practices from products and experiences to design itself as an interrogation of current intersecting systems of oppression? Using feminist STS and queer theory, I will do a close reading and analysis of current design practices to first disorient us from designed objects and normative sense-making: automated doors, accessible spaces, neatly packaged issues, and re-orient us towards the structures and systems put in place to begin with, such as the practices, laws, and policies in education, health care, transportation, and public health. Finally, I will describe Queer Justice Design, my set of practices that formulate design as one part of community building efforts, as well as a tool for justice, and a process for designing new infrastructural knowledge practices.

Exploring Resolutions to the Device Paradigm with Speculative Design

Holly Robbins, Delft University of Technology; Elisa Giaccardi, Delft University of Technology; Elvin Karana, Delft University of Technology

Our work engages with argumentation from philosophy of technology in a research through design process to explore how design can support possible, and preferred, visions of the ways we can live with technology (Higgs, Light, and Strong 2010; Fallman 2011). Specifically our work centers on Albert Borgmann’s device paradigm (Borgmann 1984) and how to identify alternative design approaches that can contribute towards speculating how to resolve this paradigm (Robbins, Giaccardi, and Karana 2016; Fallman 2010; Fallman 2011; Cron and Stolterman 2003; Bardzell 2009). We have found that while both this particular philosophical argumentation and our speculative design process seek to promote the well being of people and society, they represent different, and sometimes opposite, approaches to doing so. We have found that bridging Borgmann’s critique and a research through design process requires navigating different approaches to specificity and abstraction, temporality, as well as modes and scales of evaluation. These different approaches can be at odds with one another. Translating concepts from the device paradigm into units of design requires traversing levels of abstraction (philosophical concepts) and specificity (parameters of a design brief). The device paradigm deals in temporalities of the present by critiquing our relations with contemporary technological artifacts; however it looks to the past for alternative solutions to the dynamics it criticizes. Finally, speculative design explores possible futures (Dunne and Raby 2013) by bypassing the present and adapting aspects of historical technologies. Additionally, the device paradigm frames evaluation in terms of principles and societal impact; where the scale of design and evaluation is typically framed as a person, typically in utilitarian capacity as a “user”. In this session, I will address how these different approaches, and possible tensions that arise between them, materialized in the speculative design process and artifacts. Further we will examine how that shaped our research through design process itself and insights on the device paradigm. Our experience provokes us to ask what role, at large, speculative design can hold for engendering philosophical critique, how does this method itself shape the outcome in this context? References: Bardzell, Jeffrey. 2009. “Interaction Criticism and Aesthetics.” In, 2357–66. New York, New York, USA: ACM. doi:10.1145/1518701.1519063. Borgmann, Albert. 1984. Technology and the Character of Contemporary Life. Chicago: University of Chicago Press. Cron, Anna, and Erik Stolterman. 2003. “Everyday Aesthetics and Design of Information Technology.” Techné: Design Aesthetics Die Frage Uber Technik. University of Barcelona, Spain, 1–9. Dunne, Anthony, and Fiona Raby. 2013. Speculative Everything. MIT Press. Fallman, Daniel. 2010. “A Different Way of Seeing: Albert Borgmann’s Philosophy of Technology and Human–Computer Interaction.” Ai & Society 25 (1). Springer-Verlag: 53–60. doi:10.1007/s00146-009-0234-1. Fallman, Daniel. 2011. The New Good: Exploring the Potential of Philosophy of Technology to Contribute to Human-Computer Interaction. The 2011 Annual Conference. New York, New York, USA: ACM. doi:10.1145/1979842.1979099. Higgs, Eric, Andrew Light, and David Strong. 2010. Technology and the Good Life? University of Chicago Press. doi:10.7208/chicago/9780226333861.001.0001/upso-9780226333861, Robbins, Holly, Elisa Giaccardi, and Elvin Karana. 2016. “Traces as an Approach to Design for Focal Things and Practices.” In, 1–10. Gothenburg, Sweden. doi:10.1145/2971485.2971538.

Not just guns but bullets too: the role of diacritic prototypes and material speculation within the STS and the Digital Humanities. Matt Ratto, University of Toronto

Given the increased role that prototyping and making plays within the digital humanities and STS, reflecting on how the objects produced by scholars serve to provide resources for critical work is a necessary and important activity. Using an example from the Critical Making lab at the University of Toronto, I explore the limits of material explorations aimed primarily at surfacing the mundane activities of socio-technical work – what I term ‘deconstructive making’ - including the practices of estrangement that underpin much humanistic ’making and doing’ scholarship. Design and prototyping activities and “making and doing” are becoming part of humanities ‘scholarly primitives’ (Galey and Ruecker, 2010). Thinking through how the objects we produce act in and on the world as speculative and/or as “actionable strategies” (Hertz, 2016) can help scholarly makers properly configure the scope and intentions of their productive work.

Mapping as a Critical Research Method: On Self-Reflective Design in the Academy

Ned Prutzer, University of Illinois at Chicago
2. Articulating the Sensibilities of Social Media

As a communication technology, social media pertains to a myriad of STS theories. Even so, STS existing theories are sufficient to capture its role in transforming the scientific. Yet, given social media’s popularity and fluidity, it is unclear if existing theories are sufficient to capture its role in transforming the social.

Project methodology and critical thinking in the contemporary design stand to gain significantly from an understanding of such analyses of grassroots mapping. I contend STS and critical thinking— that from the Critical Social Theory— to try to understand the project methodology usage and demand in the Design Field today. Parting from a rage of fixed models to flexible ones—, this paper aims to critically investigate how current project methodologies correspond and respond to contemporary demands, or “problems”, of the Design Field. Project methodology is one of the theoretical foundations of the Design Field, being it sometimes even confused as an ontological definition of it. It has been an educational core to a great part of undergraduate and graduate Design courses from around the world, but what does it mean to learn and teach project methodology today? How are the current models applied to contemporary demands, such as cultural, economical, gender, social, racial issues from distinct parts of the world? Also, are the so-called user-centered models really effective, and are they really user-centered? How do these models approach the contemporary demands and how do they solve them differently from earlier models? To investigate the aforementioned issues, we use the critical thinking— that from the Critical Social Theory— to try to understand the project methodology usage and demand in the Design Field today. Parting from a rage of contemporary projects examples, we try to discuss how they are approached and solved by these methodologies, and if they are solved. Also, we question what is considered a “Design problem” —is it really a Design problem, or is it an economical or social one that Design can perhaps help to tackle, but that is actually beyond the Field’s limits of solution?

Chair: Andrea Geipel, MCTS, Technical University of Munich

Participants:

Social Media Definition: A Task for the Researcher or the Participant? Harry T Dyer, University of East Anglia

Social Media represents an increasingly important aspect of modern social interaction; various platforms have quickly become go-to spaces not only for social interaction, but for a range of diverse purposes including media consumption, news gathering, political organisation, job searching, and shopping. Indeed, it is this growing range of diverse uses, across an increasingly diverse range of platforms with a variety designs, that makes a usable definition of Social Media at best possible and at worst impossible to maintain. New developments such “self-destructing” messages (Snapchat), mean that previous definitions have become quickly defunct. Terminologies such as ‘Social Networking Sites’ further complicate a uniform definition. In addition to this, the inclusion of “Web 2.0” features, such as comment sections, as a variety of platforms further complicates the matter, encouraging social interaction and even fostering community. Presenting findings from a year-long series of interviews, this paper discusses the insights and attitudes of a group of social media users towards definitions of Social Media. Rather than define Social Media for the participant, this research encouraged participants to show the researcher how they used the internet for social action and interaction. The findings show a broad variety of spaces utilised for a range of purposes that may otherwise have been missed by defining Social Media for the participants. From this, it is suggested that future researchers should broaden their approach to Social Media in order to observe the full extent of a participants’ social experiences online.

Negotiating Visibility: How Expertise Shapes the Communication on Platforms

Andrea Geipel, MCTS

With more than 100 hours of uploaded video content per minute YouTube is the leading social video platform and probably one of the primary keepers and distributors of audiovisual information. As such, YouTube gained increasing importance as a channel for distributing knowledge about science— and implicitly promised to democratize the so far expert-driven sphere of science communication. However, platforms like YouTube provide distinct technical affordances, which curate the content and shape communication structures and therefore neglect the idea of neutrality. While platform studies mainly focus on the platforms itself and studies in science communication focus on the platform’s users, STS still lack studies integrating and connecting both perspectives. Therefore, the presented project answers the question how YouTube as a co-constructed platform shapes the production of scientific online videos. While it is true that everybody can upload video content, the platform logic privileges certain type of videos produced by users with knowledge about the platform’s technical, algorithmic, and social conditions. As a result, users need a specific expertise
How Can Caregivers Take Care of Themselves with Social Media?

Informal caregivers have made significant contributions to the health sector. While informal caregivers have taken on expanded roles in coordinating and delivering care to older people and those with long-term care needs, their own health is often neglected. Research has consistently reported higher stress levels among informal caregivers than non-caregivers. They also experienced more mental and physical health-related problems and a higher level of social isolation. This study examines how informal caregivers use social media sensibly. Sensible use of social media not only enables informal caregivers to perform better caregiving responsibilities but also improves their own physical and mental health. In previous studies, researchers have used the Technology Acceptance Model (TAM) to predict acceptance of new technology by specific professional groups. Based on this model, it is logical that informal caregivers are able to use social media to help address their own health needs and alleviate caregiving burdens simultaneously. Yet, while TAM has some merits, the model does not adequately show how the proposed acceptance takes place. The model can be improved by careful analysis of qualitative data. This paper reports qualitative findings to show how informal caregivers utilize social media effectively by paying attention to proper manner. The findings also illustrate how established models sometimes fall short of capturing the potential of new technological possibilities.

Utilizing Social Media for Knowledge-making: A Research Framework

This paper proposes a framework to facilitate the utilization of social media for knowledge-making. Although many researchers and practitioners have recognized the transformative value of social media for knowledge-making, skeptics continue to undermine social media as “for entertainment only”. They view the use of social media for serious purposes—such as knowledge-making—as prohibitively difficult. Among other things, there is no easy way to distinguish between credible and misleading contents circulated in social media networks. The paper synthesizes the academic literature, technical reports, and other sources in the field. Propositions and a framework are then generated to articulate the possibilities of social media—how can this technology be utilized more properly for knowledge-making than before. The framework consists of two dimensions: The “social” dimension is concerned with interactional processes among knowledge makers. These processes are intended to: (1) spread knowledge within and across specific networks; (2) build and sustain the knowledge-maker’s credibility; and (3) stimulate, repair, and sustain interests within the knowledge-making communities. The “media” dimension deals with (1) texts, (2) pictures, and (3) audios/videos. These are means to make and transmit knowledge, enabling and restraining the three interactional processes mentioned above. To motivate further STS research, the proposed framework is applied to identify optimal collaboration between users of different expertise. Optimal collaboration can increase spreadability and sustainability of social media contents. We draw on empirical cases to illustrate the proposed framework, and discuss its implications for promoting citizen science.

Chair: Ricky Leung, SUNY-Albany

198. EASTS Journal Editorial Meeting

Lunchtime Workshop 12:30 to 2:00 pm Sheraton Boston: Floor 3 - Public Garden

199. Blogs, Backchannels and Short Form Writing

Lunchtime Workshop 12:45 to 1:45 pm Sheraton Boston: Floor 3 - Beacon D

This lunchtime session brings together the current editors (and several assistant editors) of Backchannels, the blog for all 4S news. All researchers attending this panel will gain updates and insights into the past 6 months of Backchannel news. These short form writings range from conference report-backs from a range of STS conferences, to the re-blogging of global STS research impacts through to STS scholars’ interventions into the mainstream press. The recent new series of posts entitled ‘Silenced Issues’ will also be highlighted in this session. This also includes issues of mobility as a consequence of recent political problems and authoritarian governments which may be silencing the work of STS researchers. This session is a practical guide to how Backchannel editors find, commission, develop and edit short form writing. The editors’ will share their tips for writing specifically for Backchannels and insights into what gets reported, how and from where. In general, this panel will discuss the emergent form of short form writing of under 1,000 words and why this form of writing is so important today even if it isn’t so explicitly understood in the tenure track or Reader-Professor career progression. The panel will also discuss the use of social media to bring work to the attention of a broader audience.

Presenters: Gloria Baigorrotegui, Instituto de Estudios Avanzados - Usach
200. Building STS Programs

Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Beacon E

STS Programs at universities around the world have a wide array of institutional backing. A few are woven into the fabric of the university, while others center around a single faculty member. Some have been going for decades, and others are only just beginning. Many have ties to anthropology, business schools, engineering, medicine, history, philosophy, and/or sociology. We all, however, share a set of family resemblances to each other based on our common commitment to strengthen the theoretical, empirical, and pedagogical development of Science and Technology Studies. We do not yet have a place to routinely discuss strategies for building STS within disparate locations. Events like the STS Next 20 conference at Harvard in 2011 provide touchstone moments for the community, but there is no formal network or repository of knowledge that those building programs can engage. This lunch provides a space to strengthen the more ad hoc connections between existing and emerging programs, and to explore what types of more organized engagement are desirable.

Presenters:
- **Samuel A Weiss Evans**, Tufts University
- **Daniel Breslau**, Virginia Tech
- **Gretchen Gano**, Center for Science, Technology, Medicine & Society, University of California Berkeley
- **Kelly Joyce**, Drexel University
- **Kyoko Sato**, Stanford University
- **Nick Seaver**, Tufts University
- **Jameson Wetmore**, Arizona State University

201. Feminist STS Meet-up

Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Beacon G

Toward building a network of scholars for discussion and programing.

202. Ethnografilm Dalies II

Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Commonwealth

What better way to spend lunch than in a dark room watching ethnographic films? Our "ethno-lunch" began in Barcelona, where several dozen people gathered each day after the morning sessions to relax, eat their lunch, and view a selection of short films selected to represent the "best of" the films screened at Ethnografilm Paris during the April 2016 festival. We continue the tradition with an entirely new selection of films from the 2017 festival.

203. Getting Out The 1,000 Words 2: Pitch Slam with Media Editors and Policy Advisors!

Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 2 - Grand Ballroom

As a follow-up to Thursday's panel discussion of op-ed and short form writing, this lunchtime workshop will be run as a Pitch Slam. Come prepared to try out your op-ed and short form story ideas, as well as your policy memos, and get direct feedback from news editors, journalists and policy advisors. You can also get advice on what sorts of outlets or venues might be most suitable or effective for your contributions.

Presenters:
- **Maria Balinska**, The Conversation
- **David Corcoran**, MIT Knight Science Journalism
- **Dan Pomeroy**, MIT International Policy Lab

204. Doing Situational Maps and Analysis in STS

Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Riverway

Situational analysis is an extension of grounded theory for analyzing qualitative data including interview, ethnographic, historical, visual, and/or other discursive materials. It is especially useful for multi-site research, feminist and critical inquiry, all common approaches in STS research. Emphasis is on grasping often messy complexities in the data and understanding relations among the elements constitutive of the situation. Theoretically, the method draws on especially Dewey, Foucault, Strauss, Haraway, Deleuze and Guattari and attends carefully to nonhuman elements in situations of inquiry. There are three main mapping approaches: 1. situational maps lay out the major human, nonhuman, discursive and other elements in the research situation and provoke analysis of relations among them; 2. social worlds/arenas maps lay out the collective actors and the arena(s) of commitment and discourse within which they are engaged in ongoing negotiations—interpretations of the collective social situation; and 3. positional maps lay out the major positions taken and not taken in the discursive data vis-à-vis particular axes of difference, concern, and controversy around issues in the situation of inquiry. Through mapping, the analyst constructs the situation of inquiry empirically. The situation per se becomes the ultimate unit of analysis. The maps themselves offer coherent means of representing the analysis useful for presentations and publications. This workshop will focus on the first kind of map, the situational map. It can be used for initial project design and later revised in a flexible and iteratively responsive manner across the duration of the project. That is, the situational map is reconstructed over time to specify emergent elements in the research situation about which data have been and/or still need to be gathered. The maps thus intentionally work against the usual simplifications so characteristic of research. Used in project design from the outset, the maps enable gathering data about theoretically and substantively underdeveloped areas of the situation of inquiry. Participants may come to the workshop with a draft map and be prepared to discuss it in the group. The workshop goal is to help participants get a strong analytic grip on the situation. For more information on SA, see www.situationalanalysis.com and resources including: **Clarke, A. E. (2005). Situational Analysis: Grounded Theory After the Postmodern Turn. Thousand Oaks, CA: Sage. Clarke, A. E., C. Friese, & R. Washburn (Eds.). (2015). Situational Analysis in Practice: Mapping Research With Grounded Theory. London: Routledge. Clarke, A. E., C. Friese, & R. Washburn (Eds.). (2018). Situational Analysis: Grounded Theory After the Interpretive Turn. Thousand Oaks, CA: Sage. [Available August 2017]**

Presenters:
- **Adele E Clarke**, University of California, San Francisco
- **Rachel Washburn**, Loyola Marymount University

205. "NSF speed dating" with STS Program Director Fred Kronz

Special Event
1:00 to 3:00 pm
Sheraton Boston: Floor 3 - 3rd Floor Registration

NSF STS Program Director Fred Kronz will be on hand to listen to STSers pitch their research proposal ideas and provide direct feedback. Look for a sign-up sheet at a table near Registration to reserve a 15-minute spot.

206. Analyzing Race as a Ghost Variable in Human Research

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon A

The routine collection of subjects’ “race” in studies on humans ensures that race is present in research, even if investigators choose not to analyze it. Moreover, research on domains that are potently racialised in the larger world (aggression, criminality, sports prowess, health, leadership, intelligence) engenders a sense that findings are relevant to race, and versa, even when researchers do not explicitly address race. Race is ubiquitous, but usually as a background variable, its meaning opaque, the reasons for its inclusion vague. For these reasons, racial content may register on levels that resist representation and analysis with tools that are
familiar (or seem “proper”) to technoscience and STS. We propose a panel that explores methods and analytic models for identifying the operation of race in scientific research that is devoid of explicit racial content and messages. The panel asks: What are the mundane practices that position race as a “ghost variable” in studies of human evolution, behavior, and health? What methods and models are required to account for the relational nature of race, and to ensure that STS analyses avoid the reification of race as a material property of bodies? In a context in which deep analyses of race expose researchers to charges of “going too far” or reading too deeply into the implicit content of studies (alongside or even against the explicit content), what strategies can we employ to counter this?

Participants:

- Microethnicities Amber Benezza, NYU Tandon School of Engineering
- The Powers of Testosterone: Race, Nation, and the Regulation of Women Athletes Rebecca Jordan-Young, Barnard College, Columbia University; Katrina Karkazis, Stanford University
- The Rational Self and the Impulsive Other: Dual-Process Models and Racializing Assemblages Chad Valasek, University of California at San Diego

The panelists discuss how hair and self in the care of the exposed and volatile brain. In the crisis of white social reproduction and threats to white market sustainability on users who are redefined as chronically opioid receptor deficient. Drawing on interviews and participant observation of opioid scientists, prescribers and consumers, this paper tracks a racialized logic of disability and prosthesis that establishes opioid maintenance as an essential feature of work and self in the care of the exposed and volatile brain. In the process, it reveals the neuroscientific turn taken in discourses of a crisis of white social reproduction and threats to white market exclusivity.

Submerging Race in Biomedical Studies of Testosterone Elizabeth Carlin, CUNY Graduate Center; Brandon Kramer; Rebecca Jordan-Young, Barnard College, Columbia University; Katrina Karkazis, Stanford University

Scholars of the replication crisis have recently highlighted that most biomedical studies are likely to contain false, inflated or mixed empirical results. Drawing from examples in the clinical endocrinology literature, we argue that these discordances may provide a mechanism for researchers to engage in citation bias that reinforces patterns of scientific racism. We demonstrate how citations are used to “triangulate” a causal logic between race, diagnoses and biomarkers like testosterone, contributing to the racialization of health criteria that exists only through the selective implementation of these mixed findings. Using the case studies of polycystic ovary syndrome in women and prostate cancer in men, we employ science and technology studies to trace how this triangulation occurs and identify the “ghost variable” in studies of human health. Rather than understanding race as relational, race is biologized, individualized and subverted in health research through its inscription in biocodes and research factors. In turn, race haunts the diagnostic thresholds by which biomarkers are both medicalized and later pharmacIALIZED. We show that the racial preoccupations that underlie these research practices have already shaped clinical guidelines on testosterone therapies and that these narratives will become more impactful as they become embedded in the discourses of personalized medicine. By outlining how selective citation practices enact racial differences, we hope to generate more “ghost hunting” methods by which STS scholars can identify, track, and magnify these subtle mechanisms.

Prosthetic Whiteness: Management of Racial Risks in Opioid Science Helena Hansen, New York University

Whiteness is the assumed norm of the disembodied neuroimages and physiological profiles that populate addiction research and lend material evidence to biological concepts of addictive diseases. The very anonymity of the subject is what gives these findings racial potency. This paper examines the ways patented synthetic opioids are imbued with whiteness in addiction science, conferring qualities of blameless consumption and sustained productivity on users who are redefined as chronically opioid receptor deficient. Drawing on interviews and participant observation of opioid scientists, prescribers and consumers, this paper tracks a racialized logic of disability and prosthesis that establishes opioid maintenance as an essential feature of work and self in the care of the exposed and volatile brain. In the process, it reveals the neuroscientific turn taken in discourses of a crisis of white social reproduction and threats to white market exclusivity.

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The Powers of Testosterone: Race, Nation, and the Regulation of Women Athletes Rebecca Jordan-Young, Barnard College, Columbia University; Katrina Karkazis, Stanford University

In 2011-12, elite sports organizations announced a regulation limiting natural testosterone levels in women athletes, claiming that the rule is scientifically based, promotes fair competitions, and even benefits the health of women athletes identified as “hyperandrogenic.” This paper uses critical race theory, feminist STS, and social studies of medicine to examine the covert operation of race and region in this regulation, which, though officially objective and neutral, exclusively targets women of color from the Global South. Using regulation documents; scientific publications; media coverage; original interviews; and sports officials’ public presentations, we show how the promotion and implementation of this regulation assemble specific meanings of “advantage” and “fairness” that reiterate hierarchies of race, gender, and region. We pay special attention to “T talk,” a web of direct claims and indirect associations that circulate around testosterone both as a material substance and as a multi-valent cultural symbol. T talk lends scientific authority to this regulation, and underwrites multiple distortions: a racialized aesthetic of gender is made to appear “normal/natural” and biological, not cultural; “sex testing” is disavowed and repackaged as a health intervention “for the good of the athlete”; and the operations of power and harm in the regulation are inverted—the least advantaged are figured as “unfairly advantaged,” and the extraordinary harms of interventions are framed as clearly beneficial. Our analysis makes the “ghost connections” among the regulation, gender, race, and region explicit by showing how the regulation in practice intersects with material conditions to produce specific effects on particular people. The paper makes a particularly important contribution in that there is at present scant literature that melds critical race theory and feminist intersectional analyses with STS; we also give explicit attention to the methodological challenges of identifying the racial and geopolitical content in a scientific literature and practice that is officially silent on matters of race and region.

The Rational Self and the Impulsive Other: Dual-Process Models and Racializing Assemblages Chad Valasek, University of California at San Diego

In the past few decades, the field of behavioral economics (BE) has developed and relied upon a particular model of human nature: that all human subjects are of two minds. This ‘two minds’ concept is better known as dual-process theory, which suggests that our brain is made up of two contrasting, and sometimes collaborative, systems of information processing and decision-making. The first system is argued to be most connected to our evolutionary past and most associated with affect and automatic processing; System 2 is considered the more recently evolved system, and is seen as a more deliberative, rule-governed, rational utility maximizer system. Dual-process theory has increasingly come to be used by policy-makers as a conglomerate conceptual framework for, not only understanding human behavior, but for assessing and intervening in a variety of
Social and health problems at the national and global scales, consequently perpetuating hegemonic labels and governance of “deficient” individuals (disabled, fat, children, etc.). This paper attempts to understand (1) the importance of emotion regulation for economic theory and policy, and (2) how this notion of emotion regulation and dual-process modeling are thoroughly racialized in implicit and explicit ways.

Chairs: Rebecca Jordan-Young, Barnard College, Columbia University
Katrina Karkazis, Stanford University

207. Visual (In)Sensibilities III
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon B

Images are everywhere. They surround us, shape societal beliefs and value systems, and influence how we make sense of the world. Yet, images are not innocent representations of reality but created within societal practices and imbued with cultural values. Within contemporary visual cultures, visualizations are intrinsically linked to technological artifacts, such as cameras, x-rays, ultrasounds or MRIs. The development of digital image production and manipulation impinges in new ways on questions of the reproducibility and authenticity of images. At the same time, visualizations themselves can be regarded as technologies of perception that make the world sense-able. They play a fundamental role in the production of scientific knowledge (Latour & Woolgar) but also in the communication and dissemination of knowledge. While an important topic for STS in earlier years, recent STS engagements with images have been rather scarce. In this panel we want to re-open discussions of STS’ (in)sensibility towards visual, promoting the social studies of scientific images and visualizations (SIV) (Burri & Dumit). We encourage contributions that investigate how visualizations make the world sense-able, focusing on the practices of imaging and imagining. Contributions may look at how (scientific) images are produced (as two- and three-dimensional artifacts, as static and moving objects, etc.), what kind of role they play within knowledge production, as well as at what happens when images travel beyond their contexts of production and engagement. We also encourage studies looking at the role of images in science popularization and communication.

Participants:
Making Sense of Images: Approaches to Visualization in Biology and the Life Sciences
Scott Curtis, Northwestern University

Imaging technologies make the world sense-able, often revealing aspects of the object of study invisible to the human eye. Moreover, different technologies make different kinds of images, and researchers make sense of their object of study through their interaction with these images. How do researchers “handle” (that is, adjust, adapt, or manipulate) their chosen technology, and how does this handling help them make sense of the object? This presentation will argue that there have been two broad trends in the way scientists have handled the image since the end of the nineteenth century, and that these trends reveal different kinds of knowledge production at work. One way emphasizes a more contemplative, “hands-off” approach, especially with such technologies as film or photographs, which are as Paul Ehrlich put it, “independent of time and place.” That is, these technologies allowed biologists, for example, to examine recorded cells anywhere, anytime without the fleeting rush that accompanies observation of a live cell. Scientists could contemplate the image. Yet the post-WWII emergence of television technology in the laboratory points to a persistent desire to inject time and place into the observational strategy. Television microscopes (or opaque projectors earlier) allowed the researcher to interact with the image and the object in real time. Through an examination of historical sources and testimony, this paper will argue that these two long-standing approaches to visualization, contemplative and interactive, reveal that the scientific production of knowledge has depended at least partly on the quiet exchange between researcher and image.

Not Just Any Map Will Do: Map Usage in the Site Selection of the Laser Interferometer Gravitational-Wave Observatory (LIGO) Large-Scale Interferometers
Tiffany Nichols, Harvard University - History of Science

This paper explores the use of maps in identifying sites for placement of large-scale interferometers by LIGO and affiliated researchers involved in the site selection process which has been overlooked in research directed to the history of gravitational wave detection. Specifically, I seek to show that map scale, in this case predominately 7.5 minute topography maps, led to placement of the interferometers in unexpectedly noisy areas. I will rely on cognitive psychology theories related to perception of and understanding differences of scale between a map and the land. Although these topography maps provided the information to determine the flatness of the land, a highly sought after quality for the sites, these maps did not provide sufficient information concerning localized disturbances that would affect the ability of the interferometers to detect gravitational waves. These decisions necessitated engineering solutions that would stabilize the interferometer to avoid masking gravitational waves which deform the spacetime fabric on the order of 1 x 10^-22. Surprisingly, due to the unexpectedly noisy sites, the engineered solutions allowed for increases of sensitivity in the magnitude range of 1 x 10^-22, which resulted in the detection event on September 14, 2015.

Visualising Data: A Study of Biomedical Imaging Practices in MRI Innovation, Past and Present
Silvia Casini, University of Aberdeen

In recent years, visual culture research entered into a dialogue with STS to investigate the material contexts and practices that make use of computerised visualisations and models (Carusi et al. 2015). Researchers at the University of Aberdeen have always been at the forefront of biomedical imaging research, initially thanks to the construction in the late 1970s of the world’s first whole-body clinical Magnetic Resonance Imaging (MRI) scanner led by Professor Mallard and, more recently, associated with the development of fast field-cycling MRI, a new method for creating better quality images of the body and the brain. Using both archival and ethnographic methods (Latour and Woolgar 1979, Knorr-Cetina 1999), this paper analyses the visual and material practices as they unfold in the laboratory. I explore how decision-making processes related to the acquisition, visualisation and interpretation of data were and still are crucial elements in the development of novel techniques for visualising the brain. The study of the archival material on the development of the first MRI scanner combined with fieldwork in the laboratory in which the new MRI is under development, highlights the importance of data visualisation before a new biomedical imaging technique becomes standardised. Making explicit the forces and procedures at work in the development of the new MRI opens up visualisation alternatives - for example, alternatives to the “extreme image” problem highlighted by Dumit (2014). Greater understanding of alternative visual representation choices enables researchers to better address the differing needs of future scientific, clinical and patient communities.

Visualizing Lies: The Relevance of Imaging Technologies in Modern Lie Detection
Torsten Heinemann, University of California, Berkeley; Larissa Fischer, University of Hamburg; Bettina Paul, Universität Hamburg

Despite its lack of scientific credibility, lie detection technologies, and particularly polygraph tests are widely used and increasingly so. Modern lie detection heavily relies on imaging technologies in order to (1) generate information on true and false statements and (2) present and make the results available to different audiences. The newest methods in this context draws on brain imaging to detect the lie at its origin, that is the brain, and getting a seemingly direct access to the truth, proposing that you can see the lie. This paper presents first results of an ongoing research project on the (re-)configuration of lie detection practices by comparing polygraph tests and new neuroscientific fMRI technologies. The focus will be on the
208. Envisioning Nuclear Technology Futures Amid Political-Epistemic Uncertainties

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon D

This panel reevaluates financial, regulatory, and political visions of nuclear technology futures during a moment of immense political-epistemic uncertainty. Defense intellectuals, technocrats, nuclear industry leaders, and STS scholars alike are now at risk of being written off as out-of-touch elites by frustrated publics. Nationalist-populist regimes increasingly gain political authority not by aligning themselves with technocratic knowledges (as in Foucauldian power-knowledge frameworks), but by mockingly dismissing them. Spectacular denials of climate science, election polling, vaccine science, intelligence experts, crime/job statistics, and media fact-checks have energized wide public blocs. Pundits have declared a post-truth era. Today’s uncertainties about tomorrow’s funding streams, environmental regulations, and geopolitical stabilities inevitably affect how nuclear energy and weapons futures are envisaged. But are nuclear expert practices being retooled in response? Panelists explore these questions in contexts of new commercial reactor financing initiatives in Finland, Generation IV advanced reactor innovations globally, questions of democratic ownership, and anti-elite, anti-technocrat, anti-globalist upheavals reorienting to meaningfully reroute deeply entrenched military-industrial path dependencies? Have new attacks on expertise writ large opened up space for once-unlikely alliances between skeptical defense intellectuals, disillusioned deep state elites, left-liberal scholars, nuclear technocrats, scientists worried about climate denialism, Silicon Valley opponents of anti-immigration orders, and other professional communities of the highly trained? Can realignments in how nuclear insiders, social scientists, and other professional experts relate to each other reshape how nuclear technology futures are envisioned?

Participants:

Political-Epistemologies of Mankala Cooperative Nuclear Energy Financing in Finland
Vincent Ilenthal, Cornell University

Finland’s “mankala” nuclear energy corporations are LLCs run like zero-profit cooperatives that bring together consortia of Finnish corporations and municipal energy providers to purchase, finance, and share the output of jointly-owned energy generation facilities. This talk presents an ethnographic analysis of political-epistemic triggers to how mankala company Fennovoima’s ownership consortium realigned from 2012-2014 amidst divestments from Finnish investor-companies and the German-based energy giant E.ON. These realignments were compounded by Japan’s Fukushima disaster, financial and sovereign debt crises abroad, geopolitical shifts after Fennovoima moved to buy a new reactor from Russia’s Rosatom, and Finnish mankala TVO’s Olkiluoto 3 reactor project’s cost overruns, delays, and litigation with France’s Areva. Yet despite the shifting transnational relations constituting TVO and Fennovoima, insiders continued to associate the mankala corporate form with national-cultural forms of the Noble Nordic stock character harboring supposedly uniquely Northern European virtues of trust, cooperativeness, societal cohesion, and transparency. These insistences upon Nordic or Finnish cooperative uniqueness were essential to both mankala corporations’ function and to Finnish mankala circuit insiders’ senses of professional purpose. Yet the ways their futures were known shifted amidst uncertainties about Finland’s political-economic tomorrows, nostalgic melancholies about fragmenting societal solidarities, and nationalist-populist groups’ zeal for nuclear’s energy independence possibilities. Untangling increasingly incompatible political-epistemic articulations of mankala’s essence, this talk explores ways nuclear professionals performed fidelities to notions of “mankala” and “Finland” to endow futures with form in conditions of radical unknowability. This shows how their continual iterations and reiterations of these two broad concepts gave Fennovoima and TVO forward momentum into uncertain tomorrows.

Populism and Nuclear Power in Europe
Gordon Mackerron, University of Sussex

As in other parts of the world, populism in more than one shape has been rising steadily in Europe in the last decade or so. A common thread is a desire to strengthen the state, often at the expense of market processes. Among countries committed to nuclear power, and either influenced by populist movements or with populist Governments (UK, Hungary, Poland, Turkey), state commitments to new nuclear have been strengthened and there has simultaneously been a distinct movement away from competitive tendering for new build, and towards non-transparent inter-Governmental agreements. The opportunities this offers for corrupt practice are clear. Russia has been highly influential in inter-Governmental agreements, and has sought to re-establish its influence in its former satellite states - as well as in many other parts of the world - by offering apparently attractive financial deals that it may now find hard to honour. The ostensible motivations for nuclear power in populist narratives are hardly at all to do with climate change: they are heavily focused on security, on the paradoxical view that buying technology, expertise and nuclear fuel from foreign sources will somehow promote national security. In the UK the populist UK Independence Party is both climate-sceptical and fiercely supportive of nuclear power. In some variants of populism nuclear may also be seen as a possible route to weapons. This may be the case where Governments refuse to abandon the grossly expensive option of plutonium separation when contemplating entering civilian nuclear power for the first time.

Nuclear Emergency Response: Walking the Tight Rope between Cynicism and Normalization
Sonja Schmid, Virginia Tech, NVC

Preparing for nuclear disaster has always had a cynical undertone, whether it was civil defense during the Cold War, or emergency management planning in the early decades of the commercial nuclear industry: either the dimensions of the anticipated disaster were so enormous that any kind of meaningful response appeared futile, or the plans developed to protect people were ludicrous. Often, public fear served as justification for secrecy, obfuscation, and inaction in the face of real safety concerns. It is therefore not surprising that the prevention of nuclear disaster (in both the military and civilian spheres) has received the lion’s share of attention, support, and funding. This paper takes a fresh look at the ambiguous mission of nuclear emergency preparedness and response in the civilian nuclear industry, an area that has – at least temporarily – earned renewed emphasis in the wake of the 2011 Fukushima disaster. On the one hand, various “lessons learned” reports have outlined strategies to strengthen nuclear emergency response by proposing (and in some cases implementing) technical, legal, and organizational mechanisms. On the other hand, these same mechanisms risk normalizing practices designed to address “beyond design basis” events. I argue that the alleged cynicism...
of these programs may have its roots not so much in the (earnest) intentions to respond effectively to nuclear disaster, but rather in assumptions about expertise and expert authority (and public ignorance), and the possibility and desirability of control.

**Nuclear Lying: A History**

Hugh Gusterson, George Washington University

There is considerable talk about a contemporary move to a post-truth era. But "alternative facts" have always been integral to the history of nuclear weapons. The Trinity test was described to local newspapers as the explosion of an ammunition dump; President Truman, announcing the first atomic bombing, described Hiroshima as a military installation; the U.S. government lied to the American people about the risks of fallout from nuclear testing; and JFK got elected by inventing a "missile gap" that didn't exist. Maybe we should see the nuclear state as the leading edge of post-truth. But we should also ask about the conditions in which lies become integral to public policy -- especially when they involve scientists, whose professional culture sacralizes factual accuracy. The nuclear lie creeps in at the fulcrum between science and policy and is enabled by an environment of official secrecy and compartmentalization of knowledge. The lies of the nuclear state were different from the lies of the Trump Administration because they relied for their success on a belief in truth -- on being plausible enough to remain hidden in a unitary field of truth claims. The lies of the Trump Administration, being brazen, create alternative fields of factuality rather than seeking to conceal themselves in a unitary consensual reality. Far from paying homage to the truth to survive, they seek to weaken factuality itself.

**The Walking Dead: “Truth” and the “Success” of Advanced Reactor Technology**

Allison Macfarlane, George Washington University

Proponents of “advanced nuclear reactors,” the current term of art for a set of nuclear power technologies dominated by “fast” reactors, are making a funding push in countries where they’ve maintained a foothold. For decades, this technology has held the promise of producing electricity “too cheap to meter.” Though the fast reactors are no longer being built in the US, fast reactors have actually never been able to overcome technical and financial limitations to prove economically viable in any country that developed them, including France, Germany, India, Japan, Russia, the UK, and the US. Fast reactors, like a few other technologies, is what I term a zombie technology: “lived” a short life and continues on, like the undead, never meeting its promised potential, but never really dying either. The ability of a 70-year-old technology that has never succeeded in the marketplace to continue to receive government support suggests a technology whose proponents recurrently rewrite its story. This paper explores the connection of the continual resurgence of this technology to ideas of modernity, power, and the role it plays in “growing” new nuclear engineers and maintaining the nuclear engineering community. The goals of the technology reach beyond its stated purpose (to produce electricity) and the myth of the technology undergirds the entirety nuclear power.

**Synthetic Situations and Algorithmic Phenomena**

Elena Parmiggiani, NTNU; Eric Monteiro, Norwegian University of Science and Technology (NTNU); Thomas Österlie, NTNU Social Research

With the proliferation of social media, algorithms, simulations, and the Internet of Things in work-related and private settings, the idea of situated interaction and action is challenged.

Situations are seamlessly augmented with a wide and expanding variety of digital representations, thus becoming entangled with their material and technological means. This shift resonates with the notion of algorithmic phenomena (Orelliowski and Scott 2013): the digital no longer stands in for but becomes the phenomenon. Algorithmic phenomena are manifest in our longitudinal studies within the offshore oil and gas industry, characterized by data-intensive work where people are not colocated with the physical objects and processes around which their work is organised. The phenomena under inquiry emerge as algorithmically performed through digital technologies: the datasets, the technological arrangements that generate them, and the practices in which they are embedded are co-constituted. Our contribution to STS expands Knorr Cetina’s (2009) ‘synthetic situation’ to develop a sensitivity to the way different entailments of these algorithmic phenomena play out and under what conditions. Highlighting the performative nature of synthetic situations, we find that, first, noise in the data is not only irreducible, but productive in and of algorithmic phenomena. Second, we highlight how the generative nature of algorithmic phenomena reshapes the ramifications of the synthetic situation. Third, we discuss how politics manifests in synthetic situations. While algorithmic phenomena open the stage for the interaction of diverse actors, they have the potential to further concentrate knowledge creation (hence power) in the hands of a few strong stakeholders.

**Synthetic Relationships: Affective Flexibility in the Diagnostic Genetics Laboratory**

Chris Goldsworthy, Institute for Science, Innovation and Society, University of Oxford

Drawing upon observations of a diagnostic genetics laboratory in the UK this paper will examine the spatial and temporal aspects of the synthetic interaction between the genetic scientist, the bioinformatic representation of genetic information and the global genetic databases used to prescribe meaning to genetic mutations. In doing so this paper will discuss the affective and enactive capabilities of the software and machines organised within the situated interaction. By this I mean not only does the software enact a particular representation of genetic information as prescribed by international standards, but it is also affectively sensitive and flexible to the needs of the user within the interaction. Information can be hidden, revealed or filtered based upon the situated needs of the knowledgeable inter-actor, as well as the development of global genetic databases over time. This response presence enables the manipulation of standardized software outputs to case specific and locally pertinent information within the interaction. The contribution this paper makes is to emphasise the place of synthetic relationships as temporally extended beyond the interaction and the effect this has upon the effectiveness of the affective flexibility of the acts to adapt the global world of genetic information to the local day-to-day needs of the diagnostic laboratory.

**Approaching the Algorithmic Governance of HIV**

Jeffrey
Andrew Christensen, Tema T, Linköping University

The subject of ‘algorithms’ has seen a marked development in recent years. However, while the term itself is increasingly deployed throughout popular media, policy decisions, and scientific discourse, what it is that these objects are and do often remains black boxed. In spite of this, or perhaps because of it, discussions surrounding algorithms tend to become polarised between instrumentalist declarations of their inevitable utility and romanticist concerns about their dehumanising effects. This paper will discuss how attending to the politics of algorithms can be better understood as a practical engagement with their performativity. Drawing on my ongoing fieldwork in HIV healthcare practices, I discuss how multiple versions of algorithmic governance can sometimes find themselves in tension with each other and the issues that arise from these situations. I discuss how different practices generate different forms of algorithms while interrogating the knowledges, logics, and subjectivities that are materialised in these objects.

“How angels are made”: Ashley Madison and the Social Bot Affair Tero Karppi, Department of Media Study, State University of New York at Buffalo

Social bots have been traditional discussed through two intertwined features: social bots are designed to mimic and appear as human users, and our interactions with social bots are founded on the disappearance of their actual nature (Gehl & Bakardjieva). These features became highlighted when Ashley Madison, the biggest social networking site for people in committed relationships, was hacked and the released data revealed that the site had generated over 70,000 social bots. The claim was that Ashley Madison was cheating users by establishing relationships with social bots instead of other human users. In this paper, I propose an alternative approach and analyze Ashley Madison’s social bots named as Ashley’s Angels TM not through their human resemblance, but instead as having their own particular features and modes of operation in synthetic situations (Knorr Cetina). Inspired by the name Ashley’s Angels and drawing on the discussions of angels as a mode of communication (Durham-Peters; Sybille Krämer), the paper explores how social bots are used to from relations between users and the Ashley Madison platform. The analysis points out that social bots are programming sociality on the platform in ways that cannot be reduced only to the framework of interaction between two separate entities. Thus the paper argues that synthetic situations are also situations of infra-actions (Barad) where humans and bots form inseparable assemblages and infra-actions (Massumi) where our sociality is being programmed before and beyond rational inputs.

Chair:
Niklas Woermann, University of Southern Denmark

Discussant:
Karin Knorr Cetina, University of Chicago

210. Shaping the Human–Technology Frontier I

Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Beacon F

This session welcomes interdisciplinary research from an STS lens that critically evaluates and/or is actively involved in developing projects where integrated technologies (sensors, communication, computation, virtual intelligence) are embedded around, on, and in human subjects and the environments they inhabit. Thematic questions this session will explore:

- How are emerging integrated technologies shaping human behavior and health in relation to natural and built environments? How are they shaping social organizations in relation to natural and built environments? What are the ethical/legal implications of integrated technologies on privacy and security?

Participants:

- Configuring Technologies, Organizations and User-Bodies: The Introduction of 3D Printing to the Prosthetics Industry David Seibt, Technical University of Munich

The introduction of 3D printing to the prosthetics industry is starting to change the way organizations, technologies and their embodiment users relate to each other in the field. As a result, these new tools are not only linked to how prostheses are produced, but also impacts who participates in production, what kind of devices are developed, and whom they are designed for. I will give three examples of such re-configurations (Suchman 2007, 2012) and describe how they shape the way people with limb-differences can engage with and are perceived by their environment. Firstly, the potential for digitally enabled mass customization changes, which market niches are judged profitable by firms. This impacts what type of devices is developed and which groups of people is served. Secondly, open source communities are trying to upend trade-offs between patient care and corporate profit. They use hobby-level 3D printers to produce very basic low cost prosthetic devices for underserved communities. Finally, new firms and communities draw on imaginations of the human body that differ from the ones prevalent in contemporary prosthetics. Instead of trying to ‘normalize disability’, they use digital design capabilities to produce superhero or cyborg inspired prostheses.

Ending on a more conceptual note, I argue that configurations of organizations, technologies and user-bodies like the ones explored in my study are relevant beyond the extreme case of prosthetics. In this vein, I provide some starting points for bridging findings from organization studies and feminist STS, which are useful for studying technology design and use more generally.

References:


Hybrid Ecologies, Affective Atmospheres and Metabolic Systems in Art and Design

Desiree Förster

How can a rethinking of human identity and human agency derive from the technological expansion of the human senses, that connect him/her with the nonhuman environment? And what (future) spaces are imagined in architectural design, that serve the experience of these novel interrelations? In scaling, scripting, merging our bodily experience and interconnecting us with other spheres (such as the hydrosphere), nonhuman agents and novel objects, the human self can be experienced as world-involving. In my presentation, I want to look at artistic and design examples, that tackle the break-down of obsolete dichotomies between human an environment and open up new sensitivities for hybrid ecologies. In the background of this investigation is ecological as well as ontological questions raised from the discourse about the Anthropocene, as well as the consequences of micro processes that characterize today’s media ecologies, which run outside of our (possible) awareness. In analyzing examples from art and design that allow new interactions with our environment, I will look at the ways the human body and its senses is brought back into the discourses around the Anthropocene, new technologies and posthuman identities – not as a mere tool but as the initial source of experience. What potential lies in art and (architectural) design to open new perspectives on the human as being a part of hybrid network ecologies? How do they create spatial arrangements that allow the audience to experience physically, that they are an element among many? In works such as “Hormonorium” (http://www.philipperahm.com/data/projects/hormonorium) a space is created that makes experienceable the direct influence of invisible phenomena (temperature, light, Co2-concentration) on the human metabolism. In “H.0.R.T.U.S.” (http://www.ecologicstudio.com/v2/project.php?idcat=3&idsubcat=49&dproj=115) visitors interact with algae via a shared metabolism. Such figurations of habitat are expressions of a posthuman discourse that requests us to think about future forms of life and to re-think human agency today. In my research, I collaborate with neuroscientists and artists, currently planning to conduct an experiment on embodied cognition as part of my thesis. I might elaborate on that in my presentation as well.
Privacy and Security in the Age of Human Augmentics Jason Archer, University of Illinois at Chicago

Human Augmentics (HA), a term articulated by Kenyon and Leigh, which laid out an agenda for guiding the utopian possibilities of integrated technologies was later revised and expanded by Novak, et al. (2016) in a more critical and theoretical direction to consider the potential for integrated technologies to re-articulate human agency and sense of agency in coordination with communicative machines. As they state, “the point of HA is to develop communication between the human, machine, and environment premised on collaboration rather than co-option, engagement rather than estrangement, to increase human agency and a human’s sense of agency, not to eradicate the human in pursuit of becoming something other”. In proposing this contribution, I delve further into exploring HA from a critical STS perspective that is especially focused on implications for the future of privacy and security. Constructing the material and imaginary potentials for human-machine assemblages at the frontier, which attempt to achieve seamless integration and calm operation, may increase human agency and sense of agency in achieving immediate tasks. However, the varying conditions formulated by these technologies also threaten to radically reshape notions of security and privacy in the process, exposing humans to even more invasive practices of embodied surveillance and regulation. The goal of this project for STS is thus two-fold. First, it is meant to open a dialog with STS scholars about formulating integrated technologies through the HA lens, which is meant to locate communication and agency as the crux of engaging emerging human-machine assemblages more productively. Second, it is meant to use the HA lens as a focal point to interrogate issues of privacy and security emerging with integrative technologies before their seams and scars are concealed.

Emerging Technologies & Community Resilience (ETCR) Richard B Duque, SUNY Polytechnic Institute

Modernity on a Global scale has increased the complexity of everyday life, exposing ordinary citizens to oftentimes imperceptible social and environmental risk. Integrated technological systems that leverage emerging sensor, computational and communication technologies, though, may allow individuals, organizations and communities to better understand, prepare for, survive and mitigate after micro, mezzo and macro hazardous events. Emerging Technologies & Community Resilience (ETCR) proposes to provide the knowledge, technology and expertise needed to create just this type of integrated system. ETCR builds upon Sociological Theories of Action, Systems Theory, Information Theory, Computer Mediated Communication, and Social Construction of Technology perspectives as well as a novel theoretical framework, Systems of Accountability, to frame an applied, techno-sociological study of risk & resilience on university campus and their surrounding communities. An Action Research design, meanwhile, extends novel, inclusive and reflexive methodologies for studying complex system risks/hazards, which engages the collaboration of experts, researchers, administrators and community members in three international setting (Utica, NY, Concepcion, Chile and L’Aquila, Italy). While enhancing/developing new computational, communication and sensor technologies, ETCR identifies/creates and aggregates dynamic social and physical data from various social data and bio-eco sensor sources related to social, health and physical-environmental hazards. These sources energize an automated algorithm of hazard probabilities, made visual to community members through Virtual (VR) and Augmented (AR) Reality to integrate the operations and maintenance of the three participating smart and connected, international communities. The project proposes to accomplish these technological improvements and interventions, while considering broader social and cultural perspectives on how community members identify, evaluate, adapt to, and incorporate smart technologies to reduce risk and increase awareness amongst community members. Enhanced data science technologies will provide interdisciplinary, applied collaborations with integrated methodologies to identify, analyze and mitigate dynamic, multi-level risk.

Chair: Richard B Duque, SUNY Polytechnic Institute
Discussant: Richard B Duque, SUNY Polytechnic Institute

211. Studying Science Communication I

Traditional (Closed) Panel 2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon G

The last decades have, in a number of countries, seen an increase in science communication and public engagement activities. In many places a well defined ‘deficit to dialogue’ narrative tells of the move from ‘public understanding of science’ (PUS) models of communication (dominant in the 1980s and 90s) to more dialogic approaches, based on two-way communication between science and its publics. STS scholarship has been instrumental in these developments. Theoretical and analytical attention, as well as experiments with practice, have, however, tended to focus on policy oriented or governmentally mandated engagement, and especially on overt efforts to ‘democratise’ science. This panel focuses on forms of science communication that do not claim to formally influence policy or scientific research, and which may at first glance feature oneway communication. This includes, for instance, science in museums, science fairs and festivals, popular science media, science blogging, sciet activities, and university and lab open days. We invite critical STS analysis and discussion of these activities. This might include, for example, reflections on the role science communication may play in the democratisation of science, analyses of the constitution of publics and knowledges within particular science communication activities, or accounts of experimental practice. The panel will thus use the methodologies of critical STS to reflect upon the problems, potential and practice of contemporary science communication.

Participants:

Diagnosing Orthorexia Nervosa: The Medicalization of “Excessive Health” in the News Media Amy A. Ross, Northwestern University

Research has studied medicalization in contemporary Western culture, and more recently, the importance of the diagnosis within that process. Although traditionally this scholarship emphasizes how the medical institution exerts social control, significant social and technological changes increasingly facilitate the involvement of other social actors. Scholars often refer to news as a key factor in this participation but they usually approach it as a source of information, a reflection of ongoing debate or a resource for other actors to deploy in furthering their agendas. Meanwhile, media research tends to analyze news content under the assumptions that it simultaneously draws from culture, while shaping how people understand medical conditions. However, the role of the news media as itself a participant in ongoing medicalization processes remains largely under-examined. This paper attempts to bridge the gap between both traditions by analyzing news coverage of orthorexia nervosa, a proposed mental disorder described as a “pathological fixation on healthy eating.” Based on an analysis of 498 English-language news stories published between 1997 and 2016, I find
that from the beginning, the media accepted the legitimacy of orthorexia. Guided by part by journalistic norms, reporters embraced provocative and paradoxical stories they associated with orthorexia. This happened in absence of a social movement advocating for its recognition, and before the term caught hold in the medical establishment. Thus, I will argue that the news media has not functioned as a mere reflection of ongoing debates, but as key player in this medicalization process. To conclude, I will discuss the implications for scholarship on medicalization and media studies.

From the Lab to the Streets: A Field Report on Training for Synthetic Biologists in Public Engagement Matthew Harsh, Concordia University; Brandiff Caron; Ravtosh Bal, Concordia University, Montreal, Canada

Public engagement with science events that do not explicitly inform policy are garnering attention in STS literature with scholars arguing that such events are “sites of symmetrical individual or small-scale learning” that not only democratize science but also make it “more personally relevant” (Davies et al. 2009) and can be a valuable means to build citizen capacity (Selin et al. 2016). However, much of the STS literature has focused on engagement or two-way communication between established scientists or experts and the public neglecting how graduate students in science, or scientists-in-the-making, learn how to conceptualize the culture of science and the roles publics can play in science. Our research project begins to fill this gap by focusing on a cutting-edge and nationally-renowned university lab as a site for integrating societal implications and public engagement with graduate education. Combining perspectives from literature on public engagement with science and technology, responsible innovation, and experiential learning, we focus on how graduate students in synthetic biology think critically about public engagement and about societal and ethical issues related to synthetic biology. Based on a project at Concordia University that combined in-laboratory experiential learning activities with face-to-face and online public engagement activities designed and conducted in collaboration with laboratory scientists-in-the-making, we argue that just as it is important to engage the public early in a technology’s development, it is equally important for future practitioners of science to engage with the public early in their careers. Drawing on surveys, interviews and observational data, the paper demonstrates how in-lab experiential learning activities and early-career public engagement integrates science communication into normal scientific practice, and thus integrates public values into science.

Is Scientific Knowledge “Borderless”? The Citation and Credibility of Local and International Research in China’s GM-Food Controversies

Scientific evidence is very often cited in public controversies to strengthen the standpoints of debaters, especially when there are conflicting opinions within the scientific community itself. Against the prevailing belief in the universality of scientific knowledge, which holds that science has nothing to do with where it’s produced, however, knowledge is actually inseparable with its underlying socio-political complex in its circulation in society. This article examines how the “scientific knowledge” produced by Chinese scientists or Western scientists is entrusted/distrusted in China’s GM food controversies, and when viewed and mobilised as constructed “black-boxes”, how these scientific statements regarding the safety/risk of genetically modified (GM) food might differ in credibility and what are the dynamics for those differences. Relevant texts were collected for discourse analysis, and the sample consisted of newspaper and magazine articles retrieved from CNKI Database, blog posts by the advocates and opponents, transcripts of TV debates, archives of conference press release and related documents. Intervagating the scientific research cited in the debates, a distinction could be made between “local science” and “international science”, which represent two sets of different networks composed of multiple actors. This underlying network has influenced the solidarity and credibility of the statements when they are mobilised in public controversies. Whereas “science” tend to be more universal in developed countries, the distinction has highlighted the locality of scientific statements in the public arena in developing countries.

Visuals in Biology: Motion and Agency Charudatta Navare, Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research

Mechanism of action of several biological entities has been ubiquitously explained by particular drawings. STS scholars have talked about the rhetorical power these visuals have in convincing both the scientific community and laypeople(Cambrosio et al., 1993; Reeves, 2011). Others have noted the values imbued in the visuals — for instance, Martin’s (1991) work on the role of visuals in the idea of ‘active’ sperms and ‘passive’ egg. As Fox-Keller has observed, the colloquialism of “I see” is hardly innocent. In light of this, I performed discourse analysis of biological diagrams, from textbooks as well as from online educational resources, through the lens of (implicitly or explicitly) depicted motion and agency, and through the lens of a cognitive psychology theory called common coding. Common coding theory posits the sense of movement from mentally simulating the action that generated the drawing is linked to the character traits associated with the drawing. Using this sense of dynamics that underlies static drawings, I find persuasion in biological diagrams to be working in subtle ways. The lines and shapes of particular components seem to suggest agency, while those of others do not. The ‘active’ agent (GTP in G-protein coupled receptor pathways, antibodies, infectious prion proteins) often has curved or pointed shape, while ‘passive’ agents having rounded shapes. I will further discuss the possible role of visuals in establishing the ontological status of biological entities and in establishing belief in the depicted mechanism, along with the implications of this analysis for science communication.

“You have to connect with the audience” Spaces of Communication as Spaces of Knowledge Production Mariana Celeste Smulski, Instituto de Ciencias Antropológicas, Universidad de Buenos Aires

At the Unit of Applied Neurobiology (UAN, Argentina) scientists research on children's cognitive development in contexts of poverty and seek to develop possible ways of intervening on the problem. Within the framework of the field work developed there, I have attended several internal communication spaces (seminars, presentations of research advances and doctoral theses) and external (symposia, conferences and book presentations). Being the issue of research particularly sensitive to society, how to communicate scientific knowledge and what are the best means to do so is a concern of UAN members. The different possible alternatives are debated indoors, sometimes rehearsed with colleagues and then put into practice in open spaces, in interaction with other agents. The different events of communication and the dialogical exchange create spaces of production of knowledge that circulate inside and outside the laboratory. Apart from all good intentions, a unidirectional view of communication prevails, holding a gap between expert knowledge and that of lay people. In contribution to science and technology studies I will focus on the description and analysis of the following aspects: the internal discussion on improving the communication of scientific knowledge; the transfer of that internal debate to an external practice, the staging and performance at conferences, symposia and presentation of a book of general disclosure in interaction with different audiences; and regarding all those spaces, the interaction with the ethnographer, taking into account the role assigned by others and the limits of the process of estrangement.

Chair:

Maja Horst, University of Copenhagen

212. Citizen Science Policies and Practices 1

Traditional (Closed) Panel
2:00 to 3:30 pm
The term “citizen science” has a plurality of meanings: from various forms of public participation in science, crowdsourced science, community actions for regulating risks, and grassroots hacking. The roles of citizens in these initiatives vary: they may act as scientists’ sensors, trained to collect and analyze data; they may challenge regulatory standards, collect and analyze data — sometimes with the tools they design — in order to set their own agenda. The relationships between lay participants and professional in these initiatives range from tamed/collaborative to radical/competitive. The intended outputs of these projects also differ — from scientific publications, monitoring systems, new devices, identifying and removing hazards, to policy changes. Despite the ambiguity, the term “citizen science” has gained popularity in public policies and grant awarding opportunities, although often only for those on the “tamed” side of the spectrum. What citizen science can bring or is expected to deliver cannot be answered without resolving such ambiguity. This panel invites STS scholars, historians of science and techno-legal researchers to propose case studies and theoretical contributions exploring the boundaries of citizen science, as well as its techno-scientific and public policy impact for community-building, civic participation, the development of commons, and the production of knowledge.

Participants:

Crowdsourcing Vector Surveillance: Mosquito Mappers and Citizen Scientists Encounters Maria I. Espinoza, Rutgers University

Citizen science projects are becoming increasingly popular as a way to expedite data collection in the realm of public health. Crowdsourcing, most commonly used in chronic diseases research, is now being applied to tackle mosquito vector borne diseases, such as Zika, Dengue, and Malaria. Mobile apps that allow people to collect and share data on mosquito larvae and mosquito breeding sites, anywhere and at any time, are expected to help develop local mitigation strategies to reduce disease risk. Drawing upon in-depth interviews with entomologists, computer scientists and public health officials, this study looks at the experiences of Mosquito Alert, Invasive Mosquito, The North American Mosquito Project, and Mosquito Challenge. Drawing lessons from these crowdsourced citizen science projects to examine the “worldly” encounters and frictions between expert/citizen and global/local knowledges. This paper focuses on these projects’ mosquito mapping software design and field implementation processes to revise how the categories of “indigenous knowledge,” “citizen science,” and “zones of awkward engagement” inform our understanding of global production networks.

The Missing Link in Air Quality Citizen Sensing Projects; Making Sense of Data Ehsan Sabaghian, School of Information Studies, Syracuse University; Sikana Tanupabrungsun, School of Information Studies, Syracuse University; Murali Venkatesh, School Of Information Studies, Syracuse University; Sonal Ashok Said, School of Information Studies, Syracuse University

Empowering citizens with micro-sensors, monitoring air quality has been a fashionable social campaign recently with footprints spanning around the world, from Portland, WA in the United States to London (UK) and Barcelona (Spain). These social campaigns born upon the idea to empower citizens with low-cost technologies and big data to encourage them to participate in local politics and policies. However, our empirical research shows that there is little evidence that these sensors actually helping citizens with measuring local-level air pollution data. Our findings from 5 cases; 3 cities in USA and 2 in Europe are questioning the relation between pollution sources and pollution types with sensors geographical distribution in the local area. The awareness of citizens of local pollution patterns is another missing link. In simple term, our findings questioning the validity of these technologies and the data for the promised goal of the social campaign. Do these air quality sensors even measure pollution in the first place? Is there a relation between sensors and where pollution impacts citizens in daily life? Our findings disapprove the relation. Data (big data) without context will not generate information that is necessary and crucial for citizens initiate any political action, individually or collectively, or engage with local politics. Our research highlights the role of the design of these socio-technical infrastructures to make data meaningful for citizens and direct them to use data for citizen actions at the different levels. To help citizens go beyond device and data make a change in their communities. One implication of design that we propose is to link sensors locations map with pollution sources map and provide meaningful interfaces for citizens to makes sense of their sensors data and local air quality, data and motivate them to take actions. What our findings suggest is that citizens find it difficult to tie technology and data to outside real-life challenges they face in their life and initiate an action for change. These design upgrade (providing a meaning data and technology) could be an example of the missing component that links technology and data to the real world problems.

The Ethics of Citizen Science Gaming: Perspectives from STS Karen Schrier, Marist College

“Citizen science” games (such as Foldit, EteRNA, Eyewire, and Stall Catchers) have been increasingly producing new scientific knowledge. Similar to crowdsourcing, these games rely on the participation of many people—often “amateurs” or nonscientists—to help solve large-scale scientific problems by contributing and analyzing data through a game. For instance, in the game, Play to Cure: Genes in Space, players ostensibly fly through space collecting “Element Alpha,” a type of “fuel” so they can reach their destination. However, this “fuel” actually represents data points on breast cancer data. Using Play to Cure, Cancer Research UK was able to analyze this data much faster than any research team would have been able to do, adding to our knowledge of cancer. Thus far, little thought has been made to the ethical and social implications of these games, possibly because their goals are societally beneficial (e.g., cure cancer, halt Alzheimer’s disease), and due to mythologies surrounding the socio-politics of science. The purpose of this paper is to deliberate the ethical implications of citizen science games, particularly in how ethical principles are designed (or not designed) in the game, such as in the management of privacy and data-related interactions (boyd & Crawford; Poovey; Andrejevic), and in the relationship among players (amateurs), scientists, and labor (Postigo; Terranova; Fuchs; Latour). What frameworks and approaches from STS can help to analyze the ethical dimensions of the game design, gameplay, and “machinery” (Knorr-Cetina) behind this type of knowledge creation? Our driving questions are: how are ethics and ethical questions communicated through the game’s play, instructions, and discourse around the game (website, forums, invitations, calls-to-action)? What is the role of scientists, game designers, and players in expressing and validating how ethics are considered in the game’s design and deployment? How can ethics be designed into the game and the “meta-game,” as well as in how knowledge is used and communicated publicly?

Design Thinking for the Ideation of Collaborative Research Processes: A Comparative Case Study about the Co-Design of Citizen Science Experiments Enric Senabre Hidalgo, IN3 - Open University of Catalonia // CECAN - University of Surrey; Josep Perelló, OpenSystems, Universitat de Barcelona; Isabelle Bonhoure, Universitat de Barcelona

After the progressively disruptive adoption of co-design methods for the conceptualisation and definition of diverse types of projects outside Academy and the sciences, its appropriation for dynamising teamwork and collectively generating knowledge is applicable, useful and advantageous in different types of collaborative research projects. Based on the analysis of three embedded case studies, this paper explores the adoption of design thinking for the co-creation of citizen science experiments. Citizen science, as a paradigmatic field of collaborative research, can benefit significantly from co-design techniques, evolving from a ‘contributory’ to a ‘co-created’ model. The results presented derive from a project involving a
scientific team and a co-creation facilitator with different groups of secondary students, from three schools in different social demographic contexts around Barcelona. Based on the first version of a ‘Collaborative Research Toolkit’, participants developed through a series of sessions and iterations preliminary designs of experiments about human behaviour, moving from the initial identification of shared concerns to several “mockup” versions of research sequences and methods. Specific steps of the co-creation process involved discussions about social impact, feasibility and motivation around local issues, collaboratively defined research questions, and logistics needed for the management and production tasks behind each experiment realization. Based on data from participant observation, artifact analysis, semi-structured interviews and a participant’s survey, the study compares the process and outputs of these three citizen science co-design experiences, describing how some co-creation techniques can help or not to define collaborative research practices, especially for generating effective participative research ideas, design and planning. Further questions related to the co-design of collaborative research processes in other fields, like action research or team science, are also derived from this meta-research project.

Understanding Volunteers’ Interests in Virtual Citizen Science Projects Emily Oswald, Department of Education, University of Oslo

Literature on the motivation of virtual citizen science volunteers includes reports of volunteers’ interests in the projects they contribute to, indicating that volunteers may come to a project with interest in a discipline (Jackson et al. 2015), and that participating in citizen science may support new interests (Bates Goode & Lin 2016). These examples fit a well-established distinction between personal and situational interest. Personal interest refers to a “long-term disposition to engage a topic or a domain” (Azvedo 2013: 464); situational interest is triggered by the environment (Hidi & Renninger 2011). Existing studies have yet to focus on personal or situational interest in the setting of virtual citizen science, or how knowledge and expertise related to personal interest may be deployed in these projects. This study uses the pilot of a citizen science online portal to investigate situational and personal interest in virtual citizen science.

Following collaboration between a botanical organization and a natural history museum explores the assumption that volunteers from the organization may have an existing personal interest in the museum’s collections, and that the citizen science task may include some element of situational interest. Data collection for the study includes observation of volunteers’ interactions with the portal, log data, and a focus group discussion with volunteers. The study provides an account of volunteer interest in citizen science and contributes to an understanding of the role of local knowledge in citizen science and the way volunteers tailor museum-designed tasks to better meet their personal needs.


Gender, and Expertise of Techno-Labor

Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Berkeley

STS has a long tradition of inquiring about techno-work and providing foundations for studies of locality, partiality, contingency, and agency. Less attention is paid to the connections of techno-jobs to the systems of political economy in which they are embedded. The goal of this track is to encourage explicit discussion of the ways these new jobs are shaped by and sustain capital, and how they relate to broader shifts in the organization of labor and workers. We emphasize how this applies to both elite and subordinate types of techno-labor. It includes high-status jobs like the entrepreneurs and evangelists who market and distribute technical products for firms and nations, software coders who are bound by corporate non-compete contracts, techno-venture firms that are scrutinized for under-employing women, high-tech developers that rely on immigrant labor and the ‘body shopping’ practices of intermediary contracting firms, etc. It also includes a growing sector of middle and low status workers like the data janitors who clean up the internet, senior citizen ‘workkampers’ who travel in their RV’s to labor at Amazon.com warehouses, manual workers who dispose of our phones and laptops, etc. We welcome papers that engage issues such as: transnational and post-colonial labor dynamics; techno-venture capitalists; R&D labor; crowdsourcing and micro-labor; outsourcing; sharing economies; creative, media, and game labor; automation; bot labor; algorithmic controls of labor; consumer labor; maintenance, repair, and care; labors of techno-waste and breakdown; racialized, gender, queer, and (dis)abled inequalities of technical labor; and digital strategies within the labor movement.

Participants:

Maintenance Work for the Global Information Highway:

Village Data Processing Centers in India Winifred Poster, Washington University, St. Louis

Data flows in the global economy are not without maintenance stops. At times, information needs to be processed, reconditioned, and transformed. This presentation focuses on sites of such data processing in unlikely places – the wheat and sugar cane fields of rural India. Here we find newly installed ICT outsourcing centers, part of what are called social enterprises, as a solution to unemployment as well as a means of accessing inexpensive labor. These centers receive data from Europe and the US (on package tracking, sales invoices, human resources, etc.), and then transform, input, and transmit it back. While this growing industry has been concentrated in the technohubs of India (Gurgaon, Bangalore, Hyderabad, Mumbai, etc.), it is now moving into village areas of Rajasthan, Maharashtra, and Karnataka, where I have done my fieldwork. In these locations, the work is broken down into more simple tasks, but still directly connected to global information systems, and done in real time. One aim of this project, then, is to capture the complexity of what Miraftab (2016) calls the global heartland. Rather than being cut off from capital and information flows common to cities, rural areas are also becoming sites for the transnational: to receive global immigrant labor for local industries (as in her case), or in the reverse, to serve as sites of local labor for global industries (as in my case). These outsourcing centers represent meeting points – of old and new technologies, of rural and urban spheres, of consumption and information industries, of technical and non-technical labor. It is “unskilled,” but still involves interfacing with computer software, as well as reading and typing in languages they do not speak themselves. It is routine work, but involves the high pressure labor of linguistic translation, data conversion, and inputting information in real time, often just minutes. Another aim is uncovering the invisible labor (Poster, Crain, and Cherry 2016) of information services. Like data janitors, social media content moderators, and call center workers (Downey 2001; Irani 2015; Poster 2011), these workers do the hidden, unglamorous, and routine labor of cleaning up and caring for data. This is a form of maintenance work (Russell and Vinsel 2016), opposite to the more prestigious and well-rewarded work of innovation (often in the global north). Furthermore, this case also represents an illustration of postcolonial computing, as a

Chairs: Shun-Ling Chen, Institutum Iurisprudentiae, Academia Sinica Melanie Dulong de Rosnay, ISCC CNRS Paris Sorbonne

213. Techno-Jobs and Capital III: Transnationalism, Race,
transnational system of the digital (Philip, Irani, and Dourish 2010). The seamless, smooth-running of information systems in the global north is at times dependent upon connection points located in the global south, and their highly marginalized, rural workforces.

Race, Gender, and the Perfect Digital Latina Worker Melissa Villa-Nicholas, University of Rhode Island; Miriam Sweeney, University of Alabama

Anthropomorphized virtual agents (AVAs) are computer programs with human characteristics and personality traits that act on behalf of a user in a virtual environment. These programs are increasingly integrated into library services, online shopping sites, search engines, customer service interfaces, mobile applications, personal computing applications, and online education. As some information service work is replaced by digital workers, it is imperative to trace how narratives of race and gender combine to shape a digital workforce. This panel explores the AVAs designed by Airus Media as holographic virtual airport service agents. In this panel we specifically focus on the representational meaning of the Latina AVAs currently installed in San Antonio, Texas and Long Beach, California airports. We argue that race and gender function as integral design features of the AVAs that mobilize broader narratives of race and gender in geopolitically specific ways. Parallel to the rise of AVAs is the vast underrepresentation of Latinas in the information sectors, in which they are compartmentalized into lower level information service such as telephone operators, customer service, data entry, and field work. As information labor continues to be deskilled and marginalized, AVAs are sold as the ‘ideal’ Latina information employee. We conduct a critical discourse analysis of the promotional material distributed by Airus media including video demonstrations and textual descriptions from their website. As Latinas struggle for equality in the digital labor force in terms of pay, opportunities, and respect, a new labor force is being into that being draws heavily on the dialogue around Latinas as ‘illegal’ or ‘legal.’

Approaching the Ancillary Work of Campus-Based Competitive Gaming Nicholas Taylor

This paper draws on ethnographic observations and interviews with a campus-based League of Legends (League) competitive gaming team, as they strive for success in an increasingly crowded and lucrative collegiate electronic sports (e-sports) scene. In particular, I highlight the team’s activities that seem ancillary to normative understandings of how we get (really) good at games. Members write and review technical reports on upcoming opponents, hold team-building exercises, and watch replays of their own and other professional players’ games. These practices require highly complex forms of networked labor, and may help develop multiple communicative, perceptual and technical competencies. They are also vital to the team’s success—indeed, according to one team member, this work is necessary in order to compensate for their lack of ‘natural’ League talent. At the same time, both mainstream and academic accounts of digital play— including competitive play— often elide these central activities. While players themselves frame their ancillary work in readily-available discourses of team sports (for instance, they ‘watch tape’), this paper situates them alongside alternative cultural analogs. Specifically, I compare their activities to the kinds of surveillance-based practices found in intelligence communities, in which trained operators use visual, textual and algorithmic techniques to transform enemy ‘noise’ into actions that are intelligible, and therefore, predictable. This comparison not only helps legitimize the important but often invisible competencies players develop, but it may also be a productive way of theorizing broader socio-technical transformations in contemporary labor illustrated most strikingly by the complex, precarious work of competitive play.

Creative Class Consciousness: The Origins of a Collective Identity Matthew Wisnioski, Virginia Tech

This talk explores the history and consequences of a now dominant aspirational image of technological labor. Since the publication of Richard Florida’s bestselling Rise of the Creative Class in 2002, innovation experts, human resource officers, universities, regional boosters, and college graduates have championed the ascendancy of a collective social type. Members of this new class purportedly flock to multicultural cities with cafes, artisanal restaurants, participatory entertainment, and like-minded peers. Such creature comforts contribute to collaborative, interdisciplinary approaches to knowledge work. What’s more, these patterns dictate the success and failure of regions in a global economy. Drawing on archival and ethnographic research from the 1960s to today, I emphasize the role of new research centers, design philosophies, and arts-based practices (e.g. MIT’s Media Lab, IDEO/d.school, and CMU’s Art and Technology Center) in shaping the character traits of the creative class. I show how Florida’s identification of a creative class crystalized a wide range of existing narratives and practices into a blueprint for training individual “innovators” and shaping “innovation districts.” I question progressive narratives of the creative class in the context of rising economic inequality, the technocentric use of arts practices, and the formation and performance of individual selves. Through this analysis, I highlight how innovation has become an embodied virtue of early 21st century life.

Data Science as a New Expertise and the PhD Question Angela Xiao Wu, New York University

This study contributes to the growing literature on the multifarious “big data phenomena” by focusing on the professional and institutional dimensions. I examine the emergence of data science, a clouded-in-hype, yet tryingly under-defined, expertise that refers to the capacity to “coax treasure out of messy, unstructured data”, turning the exhaust of our information age into the “raw material” of our “data-centred economy.” It is, after all, the fast gathering legions of data scientists that construct and orchestrate the algorithmic interventions we see across the economy and everyday life. My approach treats “data science” as a term used to name the (contested) expertise over big data, a term with which extant and emergent practices associated with analytics cohere. In this study, I examine the emerging DS labor market. While conditioned by the lack of consensus about what DS constitutes, the labor market precedes and contributes to the stabilization of DS as an expertise. Specifically, my focus is on the market information regime during the market’s consolidation into a competitive organizational field. It is this web of information around which groups of organizations cohere, and which they all have an interest in shaping, that in effect defines DS both symbolically and institutionally. This study draws from data collected for a larger project exploring DS rhetoric and practice. My “networked field site” has four discrete components: (1) participant-observation in physical spaces where data practitioners gather (i.e., various sites in Silicon Valley); (2) participant-observation in online venues of data science training and discussion; (3) semi-structured face-to-face interviews; (4) immersion in artifacts of data science subculture. Specifically, I analyze the market information regime, whose language and logic is framed to jibe with the needs of the labor force (including veterans and new entrants), recruiting organizations, and various brokers. My analysis reveals competing frames on data science expertise and the ascendance of PhD training as foundational to good data science. The PhD habitus comes to be seen as most apt to tackle the comparable conditions of uncertainty that firms found themselves in amidst technological changes. As it gains more currency, this PhD-centered hegemonic notion of data science expertise has a defining force over the emerging “data science” occupation, including its practices, values, and corporate locations.

Chair: Norma Tamaria Möllers, Queen's University (Kingston, Canada)

214. Constructing (Sociotechnical) Resilience: Modeling and Reflexive Engagement in STS
Resilience has become a sweeping notion in this decade. People, organizations, institutions, systems and cities are constantly striving to become resilient. In this quest for resilience, there is a need for comprehending the sensibilities and the lack thereof of this term in actual practices. Towards this end, a scrutiny of this term is required in the consideration of sociotechnical systems. Sociotechnical systems are chimerical as they involve both people and technologies for a holistic constitution. Their hybridity makes it impossible for the strict division of agency on part of humans and operation on the part of technology. With the growing interests in infrastructures and disaster studies among STS scholars, the challenge of characterization of (in)sensibilities pertaining to sociotechnical resilience acquire a greater sense of urgency in the STS scholarship. Thus, this session aims to bring STS in to the conceptual and methodological exploration of resilience. By characterizing resilience as a balance between the social and technical dimensions of everyday infrastructures, this session situates resilience as a space for reflexive engagement where STS concepts are materialized into the analytical approach that aims to examine the sociotechnical behavior in the face of disruption. This session will present the processes in which to build a model and simulation using the agent-based methodology and social network analysis that demonstrate the hybrid construction of sociotechnical resilience.

Participants:

Resilience as a Sociotechnical Problem: Concept and Methodology
Sulfikar Amir, Nanyang Technological University

In the globalized world where ecological and socio-political turberlences render our life more vulnerable than ever, resilience has been promoted and widely adopted as a framework to deal with the growing risk of crisis and disturbance, especially in advanced cities that deeply rely on interdependent urban infrastructures. This presentation introduces a new conceptualization of resilience framed as an inherent attribute of sociotechnical systems. In this presentation, a concept of sociotechnical resilience and accompanying methodology to address this concept are discussed. Sociotechnical resilience is primarily characterized as transformability, which refers to the ability of a sociotechnical systems to shift from one configuration to another in response to shock and crisis. This process of transformation, we identify three factors as extremely crucial to support the internal mechanisms of system resilience: (a) Sociomaterial structures refers to the enmeshed material aspects that shape behavior and at the same time are shaped by human activities; (b) Informational relations refers to the relations, formal and nonformal, that exist and emerge during emergencies to ensure the overall functioning of sociotechnical systems; and (c) anticipatory practices refers to the activities, motives and regimes of operation of people and the overall system. This new formulation and methodology for sociotechnical resilience draws on insights from the fields of science and technology studies, human factors and safety science, and organizational and systems engineering.

Organisational Interdependencies and Emergency Capacity: A Sociotechnical System Approach
Justyna Katarzyna Tasic, Nanyang Technological University

This paper addresses the major challenge of understanding the organizational structure of sociotechnical systems. Organisational behaviour—human decisions, routines, and actions—tremendously affects system safety and capacity to recover from disruptions. However, human interactions within a complex sociotechnical organization are hard to detect and measure, and cannot be described by a linear model. In this study, the organisational structure is examined from a multi-layered perspective. More specifically, the structure is analysed as social networks embedded in the specific sociotechnical context. Thus, to investigate organisational interdependencies, the research focus embraces both formal and informal organisational structure seen as multi-layered networks of actors. This approach is applied to identify and measure the degree of organisational interdependencies, which will result in a multilayer model of organisational system to locate fault-prone and fault-tolerant interactions. By identifying vulnerabilities within the structure of organisational interdependencies, this study seeks to provide new insights on the consequences of organisational interdependencies on system resilience. Additionally, the analysis of fault-tolerant areas allows indicating good practices and guidelines for proactive management and anticipation of risk to enhance organisational capacity in coping with disruption and crisis.

Modeling Sociotechnical Resilience: the Case of Singapore
Fredy Tantri, Nanyang Technological University

As one of the major modes of land transport in the island nation, Singapore’s Mass Rapid Transit (MRT) serves over two million commuters each day. Despite being based on advanced technology and resources, the MRT system is still prone to breakdowns. According to the sociotechnical perspective, the breakdowns emerge from the complex and tight interactions between the engineered system and the social agents in an integrated structure. Using an agent based method, this research aims to build a model and simulation of Singapore’s MRT based on the sociotechnical system viewpoint. The scope of the system in the model is limited to only critical physical components such as trains, rail, power supply, and sensors, and human agents with essential role in the organization, including operators, engineers, monitoring system, and management board. Emphasizing information flow and interactions between components, this model is designed to be capable of showing the normal performance and disruption in the MRT system. Furthermore, the sociotechnical model can be applied to understand the effect of certain configurations through “What-if” scenarios, thus help stakeholders in making better decisions to respond to any crisis.

Imaginary and Dysfunction: The Real-time Emergency Radiological Consequence Simulation Technology for Nuclear Disaster in Japan
Kohta Juraku, Tokyo Denki University; Shin-etsu SUGAWARA, Central Research Institute of Electric Power Industry

Once the Fukushima nuclear accident happened in 2011, “SPEEDI” (System for Prediction of Environmental Emergency Dose Information) attracted strong public attention because of public urgent need of information to protect the people from possible harmful effect of radiation exposure. SPEEDI is a Japanese original real-time simulation system for emergency radiation protection developed and implemented since 1980s. It was expected to output both graphical and quantitative simulation results which enable the relevant actors to take appropriate actions to protect the people. It was expected to play a key role in the resilience of society against the impact of nuclear accident. However, it was not the case at the very acute phase of the disaster. Rather, it has been repeatedly criticized its social dysfunctions, due to many insufficiencies in its performance, public disclosure of the output, governance of system operation and so on. Use of SPEEDI has been controversial in the post-Fukushima off-site nuclear emergency enhancement discussion so far. Many serious disagreements among major investigation reports, relevant experts and the Governmental official decisions have been observed. The controversy is still glowing up, looking at on after the other nuclear plants’ restarts. In this paper, the authors would critically examine the history of research, development and implementation of SPEEDI and analyze the trajectory of Japanese emergency radiation protection scheme. It would be discussed in connection with the effect of public imaginary on this kind of real-time simulation technologies which are believed to make the society more “resilient” through “scientific prediction.”

Chair: Sulfikar Amir, Nanyang Technological University
215. Invited Session: Reproductive Justice and Injustice
Author Meets Critic
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Commonwealth
Boston, Massachusetts, has long been a center of activism around reproductive health, rights, and justice. At this historical moment, we have witnessed an explosion of new reproductive techno-possibilities for some, even while individual rights and reproductive autonomy for others have been severely curtailed. With the rise of authoritarian governments across the world we are witnessing renewed assaults on bodily freedoms. The aim of this special Program Committee-sponsored panel is to assess the landscape of reproductive politics and policies today, theorize new frames for reproductive justice, and explore progressive possibilities for the future. We draw on the rich history of Boston to highlight local and global activism.

Panel Members:

Khiara Bridges, Boston University
Dana-ain Davis, Queens College & CUNY Graduate Center
Debora Diniz, International Women’s Health Coalition, University of Brasilia, Brazil
Cei A Lambert, Fenway Health
Susan Yanow, Women Help Women

216. Plasticity, Postgenomics, and the Politics of Possibility II
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Dalton
The past decade has seen a growing appreciation in the life sciences for the complex relationships between biological and social life. Novel concepts in postgenomic biology and claims of an “environmental turn” in the life sciences are viewed by some scholars as challenging genetic determinism and its emphasis on the fixity of traits and behaviours. Others have raised concerns about the social and political dimensions of these developments. In line with the conference theme of (in)sensibilities, this open panel calls attention to the concept of plasticity, which has emerged as central in a number of burgeoning disciplines including social neuroscience, environmental epigenetics, nutrigenomics, microbiomics, and developmental origins of health and disease. The panel will bring together papers that critically examine plasticity from various disciplinary, empirical, and theoretical perspectives. We invite papers that look at the complexity and ambiguity of plasticity, its meanings and potential consequences for the governance of life processes and populations, its temporal and gender politics, its impacts on sociotechnical imaginaries across contexts, and its implications for social and environmental justice in the Global North and South. Far from celebrating plasticity, we invite papers to critically reflect on its relationship to contemporary shifts in the life and social sciences, its historical legacy, and the promises and hype surrounding the concept. The panel seeks to broaden our critical imagination and to support scholarship that thoughtfully engages claims that a more profound biosocial era is upon us, in which the innate and the environmental, historical and contemporary, are increasingly entangled.

Participants:

Epigenetic Plasticity and Permeability: Shifting Temporality and New Thresholds of Fetal Life
Becky K Mansfield, Ohio State University

Environmental epigenetics is emblematic of the new ‘postgenomic’ life sciences that are providing a transformative view of the biological body not as innate but as plastic. Diverse environmental factors shape the expression of genes; prominent in this model are environmental exposures during fetal development, which influence not only birth outcomes but health and disease across the life course and generations. This is both a spatial model emphasizing environmental permeability and a temporal model linking past exposure to future outcomes. How does this spatiotemporal model change what the fetus is understood to be? To answer this question, I interpret representations of spatiotemporal life emerging in the current literature on environmental epigenetics, identifying several forms of epigenetic plasticity that uniquely combine the generations that are exposed and affected and the pathway through which environmental exposures matter, e.g. the germline. I find that epigenetic temporality links past, present, and future in way that gives the fetus a keystone role as the vulnerable space-time of environmental epigenetics. Epigenetic temporality produces a folded futurity that brings multiple, future generations into the present, influenced by current environmental conditions. It thereby shifts thresholds of fetal vulnerability and intervention to incorporate other entities, including reproductive cells and very young children. Epigenetic temporality folds in on itself, producing new versions of vulnerable, plastic life that require protection now, in the enduring present, even as the future toward which epigenetics is oriented constantly recedes. These findings contribute to STS scholarship on biological temporality, plasticity, and reproduction.

Epigenetic Inheritance and Postcoloniality: The Case of the ‘Thin-Fat Indian Baby’
Ruth Müller, MCTS TU München; Michael Penkler, Technical University of Munich
Epigenetics explores, inter alia, the molecular mechanisms through which environmental exposures and experiences affect gene expression. An important aspect of epigenetics is its possible inter- and transgenerational dimension: experiences of past generations might haunt the genome of present individuals through epigenetic inheritance. Thus, while epigenetics renders biology plastic and open to biosocial becoming, it is also prone to accounts of fixedness and predetermination. The latter is particularly problematic when epigenetic inheritance becomes linked to categories of social stratification such as class, race, and ethnicity. In this talk, we explore this nexus through a discourse analysis of the figure of the ‘Thin-Fat Indian Baby’. This figure circulates in discourses about the Developmental Origins of Health and Disease (DOHaD) and global health disparities. It denotes a body composition where children are born small according to Western standards, but with ‘hidden’ fat deposits that are thought to predispose them for metabolic disease. This phenotype is considered to be prenatally induced particularly in the growing Indian middle-class as it reflects a mismatch between bodies historically adapted to poverty, undernutrition and hard physical labor, and the more nutrient rich environments in which fetuses are developing now. The ‘Thin-Fat Indian Baby’ thus embodies colonial histories, but also perpetuates notions of biological differences between ethnicities and classes in postcolonial India. We suggest that this and similar figures exemplify how epigenetic renderings of (postcolonial) bodies – despite drawing attention to the lasting health effects of (colonial) injustice – often re-constitute rather than destabilize notions of biological difference.

On the Traces of Biosocial Plasticity: A Genealogical Approach
Luca Chiapperino, University of Lausanne, Faculty of Social and Political Sciences; Francesco Panese
Our genealogical analysis of ‘plasticity’ questions this notion in its historical and epistemological development across the 19th and 20th century. By showing the continuities, contradictions and ruptures that have persisted until today among its different understandings and usages, our goal is to extrapolate from the long-standing debate on plasticity in the life sciences some relevant elements for the advancement of the current biosocial agenda straddling the social and biological sciences. First, we argue that looking at ‘plasticity’ in its historico-epistemological development allows critically assessing the alleged novelty of latest developments in biosciences, and prominently in epigenetics. The recent history of ‘plasticity’ in biology allows in fact recognizing how questions about the organic memory, the cross-talk between environments, behaviours, and biology, as well as their significance for inheritance and evolution are pervasive up until the latest developments in biomedicine. This
means that the current re-articulation of the boundary between the "biological" and the "social" testifies less a radical innovation than one further reconsideration of the enduring uncertainties with regard to the social life of our biology within the natural sciences. Second, we explore how this genealogical stance could provide a better understanding of the "biosocial", by highlighting the precariously convergent material-discursive practices create. We welcome papers that attend to the political, and technical sensibilities enables new rounds of interventions so often remake the very structures that reformers account for how this new epistemic regime not only produces previously existing "synthetic intellectual" subjects. As John Jackson notes, "We understand people to be incredible ambassadors of their cultural universes." However, as new digital technologies are harnessed by corporations, non-profits, and government to harvest personalized data, a new form of "synthetic intellectual" is developing. In these emergent knowledge economies, in which user feedback is critical to the operation of a vast array of institutions, racialized subjects have become "complicit in their own surveillance.” This paper asks us to consider these forms of knowledge production as a new front of racialization. It does so by examining the epistemic transformation of black students and parents into “users” of educational services by education entrepreneurs in Post-Katrina New Orleans. Since 2001, quantitative testing metrics have dominated school administration. These entrepreneurs employ “user centered design,” utilizing ethnographic encounters to create “rapid feedback” cycles where qualitative data produced by users signal “small failures” and drive “iteration”. This knowledge production is synthetic in that black community perspectives are rendered newly legible and actionable as they are assimilated into design protocols. This ethnographic analysis is uniquely positioned to account for how this new epistemic regime not only produces new kinds of data, but new kinds of subjects and collective orientations to educational institutions and data science. Furthermore, this paper poses the question of what kinds of conscripted labor are engendered by the formation of these racialized synthetic intellectual subjects.

Disruptive Fixation: How Enthusiasm for Ed-Tech Survives Despite Persistent and Predictable Failures Christo Sims, University of California, San Diego

In this talk I draw on my recently released book (Sims 2017) ~ an ethnography of an ambitious and especially well-resourced attempt to reinvent the American school for the digital age ~ in order to explore the (in)sensibilities of cutting-edge school reform movements. By examining these themes historically and ethnographically, the talk investigates not only why ed-tech interventions so often remake the very structures that reformers aim to disrupt but also how enthusiasm for ed-tech manages to endure despite persistent and often predictable failures. Throughout, I draw attention to how widely-held and durable ethico-political longings come to be braided together with narrowly-held and seemingly unprecedented technical sensibilities. I argue that while this conjoining of ethical, political, and technical sensibilities enables new rounds of idealistic ed-tech to spring forth the insensibilities entailed in reformers’ processes of problematization and rendering technical (Li 2007) help instigate processes in which both the agents and targets of reform contribute to refiguring the status quo. In making my argument, I draw on historical and contemporary cases of ed-tech as well other domains in which similarly misguided benevolence perennially takes root.

Feminist Politics of Belonging: Participatory Culture and Youth Digital Video Production Negin Dahya, University of Washington

This presentation focuses on research conducted with girls in out-of-school digital video production programs that have an explicitly feminist and social justice oriented mandate. Prior work informing this study addresses the ways in which the engagement of girls of color in digital video making reflect and are informed by neoliberal and postcolonial structures that effect
The Ethnographic Effect: Imagining a Next Generation of Traditional (Closed) Panel

STS scholarship draws on two distinct methodological imaginaries when Sheraton Boston: Floor 3 - Fairfax A. 

collection, production and analyses sanctioned by particular scholarly detailed, meticulous and somewhat prescriptive guidelines to data use (e.g. mobile devices vs. DSLR cameras) offer a space for integrated analysis of socioeconomic structures that impact media production practices in out-of-school educational settings. This work uniquely draws attention to how economic and cultural structures impact production processes for girls using lower cost devices that they have easy access to for creating digital video (e.g. mobile phones). Embedded in this discussion is a focus on participation and sharing culture(s) in the digital domain (Jenkins, 2006). We examine how and when girls of color experience a sense of inclusion (or belonging) when creating digital video content for a real or imagined public audience (online). Findings include pilot research from 2015 and preliminary results from an intensive qualitative study in 2017. This work pertains directly to technoscience, exploring the (in)sensibilities of participation in the digital world of young people who are already structurally minoritized within media landscapes.

Times Thirty: Infrastructural Politics, Justice, and Edtech Roderic Crooks, UCLA Department of Information Studies I use the results of a two-year long study of tablet computers deployed in a public high school in South Central Los Angeles to question the virtue of technological access. The logic of the program at issue here (and in the blended public and private domain of “edtech” more generally) suggests that access to technology in minoritized communities serves justice, since access to technology is directly or indirectly beneficial. I will revisit scholarly objections to this framing and offer a novel criticism of my own, one based on infrastructure studies: in the context of edtech, infrastructure comes to make use of humans and, in so doing, consumes all manner of resources, including money, time, and attention. As I will show, a claim that provision of access to consumer technology will benefit a minoritized community must attend to the action of infrastructure -- so that each of these elements could enhance the other in their work. I created an exercise-based approach for this course to encourage the creative, unique talents that all ethnographers can bring to the field while also strengthening our abilities to envision, capture, and re-present observation-based data. Adopting the model of a fine arts or studio course, I developed weekly exercises that the students could respond to in whatever way made sense to them. We began with the temporal dimensions of fieldwork, added the spatial dimension, turned next to ways the field could be used to explore key concepts (like “power” and “play”) and then the ways one might use objects as entry points to the field. I taught this course at Lincoln Park Zoo, in Chicago, where the students watched troops of western lowland gorillas each week. I published the exercises, common choices and problems associated with each exercise, and a sample of between seven and ten of my former students’ highly creative responses to each exercise with Oxford University Press last year. I will present one or two of the exercises and discuss some of the early reactions to this approach, ranging from those of the highly enthusiastic students (and their employers) to those of the less enthusiastic, more established ethnographers in my field.

Participants:

Watching Closely: An Exercise-Based Approach to Direct Observation Methods Christena Nippert-Eng, Indiana University

In 1997, I began developing a course to help students become better at direct observation methods. My goal was to help individuals take advantage of 1) the quest for scientific rigor, 2) the core of one’s chosen discipline, and 3) one’s unique talents and experience -- so that each of these elements could enhance the other in their work. I created an exercise-based approach for this course to encourage the creative, unique talents that all ethnographers can bring to the field while also strengthening our abilities to envision, capture, and re-present observation-based data. Adopting the model of a fine arts or studio course, I developed weekly exercises that the students could respond to in whatever way made sense to them. We began with the temporal dimensions of fieldwork, added the spatial dimension, turned next to ways the field could be used to explore key concepts (like “power” and “play”) and then the ways one might use objects as entry points to the field. I taught this course at Lincoln Park Zoo, in Chicago, where the students watched troops of western lowland gorillas each week. I published the exercises, common choices and problems associated with each exercise, and a sample of between seven and ten of my former students’ highly creative responses to each exercise with Oxford University Press last year. I will present one or two of the exercises and discuss some of the early reactions to this approach, ranging from those of the highly enthusiastic students (and their employers) to those of the less enthusiastic, more established ethnographers in my field.

A Knotty Problem: Arts Based Action Research in and out of a Community Garden sam smiley, AstroDime Transit Authority

What happens when A/R/Tographers attempt to build a sculpture out of Japanese Knotweed, an “invasive species” in a community garden in Provincetown, MA, U.S.? Using an arts based performative approach, media artist and researcher sam smiley organized a series of community interventions with gardeners, naturalists and sculptors during the Appearances Environmental Arts Festival in May of 2016. This article is a debrief of the journey of a Knotweed Sculpture from the B-Street community garden, to the side of the highway, and its ultimate destruction in a bonfire on National Seashore, in a public event called Smouldering Thing. The article is primarily methodological from an arts based research perspective, but draws theoretically on the STS fields of the public understanding of science, as well as media and science studies.

Citizen Sensing, Urban Politics and Practice-Based Research Lara Houston, Goldsmiths, University of London; Jennifer Gabrys, Goldsmiths, University of London; Helen Pritchard, Goldsmiths University of London

Sensors are by now well-established components of urban design. Smart infrastructures are intended to create more efficient and sustainable urban processes. Participation in these sensing infrastructures is often framed as a way for citizens to effect economic, political, and cultural spaces of video production (Blum-Ross, 2016; Dahya & Jenson, 2015; Dahya, 2016; Poyntz, Hoeshmann & Sefton-Green, 2016). This paper builds on Postcolonial Feminist Theory (Ahmed, 2000; Mohanty, 2003; Narayan, 1997) to explore notions of belonging (Ahmed, 2000; hooks, 2003) among girls of color. We consider notions of power related to means of production and aesthetics. We bear in mind how the kinds of social values associated with the tools in use (e.g. mobile devices vs. DSLR cameras) offer a space for unrliness and creativity are intrinsic to their emergence. We hope to recover the claim of the notion of the exercise as an embodied space of rediscovery while excising from it the idea of "mastery." Whether being carefully designed or invented on the fly, exercises unleash intuition, invention and recuperation of generative traditions. Exercises enable the conditions for the ethnographic effect, which we take to be unexpected journeys with our materials after they have been generated. We invite scholars who have developed their own exercises to discuss the theoretical and practical underpinnings of their thinking and doing. We will focus on the ‘mechanics’ of their inventions as well as on how their contributions build upon, expand, interrupt or redirect existing ideas. Recognizing that the promise of mastery is misleading and that methods are both generic and discovered anew each time they are performed, we open a space to consider practicalities and politics of methodological creativity and analytical innovation.

Participants:

218. The Ethnographic Effect: Imagining a Next Generation of Methodological Possibilities II

Traditional (Closed) Panel

2:00 to 3:30 pm

Sheraton Boston: Floor 3 - Fairfax A

STS scholarship draws on two distinct methodological imaginaries when considering how it produces knowledge. On the one hand there are detailed, meticulous and somewhat prescriptive guidelines to data collection, production and analyses sanctioned by particular scholarly communities. On the other hand, we find theoretically innovative descriptions of results based on methodological tactics that privilege unruly, creative and improvisational approaches. This panel invites scholars who wish to explore the space in between these two families of methodological approaches. It begins from the assumption that while academic knowledge production depends on methods and theories,
change within their cities. Yet how do citizen monitoring and political action emerge in these contexts? And how could expanded methods for investigating sensors and citizen sensors generate new approaches to urban politics? Moving beyond narrow modes of citizen-participation-as-data-collection, we explore how practice-based research enables an expanded understanding of how political concerns form and coalesce across human and non-human engagements with urban environments. In this presentation we describe the participatory methodology employed in the “Urban Sensing” strand of our research project, Citizen Sense. This project develops generative experiments with participation through encounters across citizens, low-cost air quality monitors, citizen-generated data, regulatory infrastructures and urban landscapes. We describe how Dustbox air quality monitors were taken up by residents and organizations in Southeast London (UK) in ways that attempted to grapple with the changing urban fabric of the area. As a response to high-density housing development on brownfield sites and tunneling for large-scale smart city infrastructure, we discuss how Dustbox data was formed through different registers and intensities of urban politics. These experimental practices are then “unexpected journeys” for investigating how citizen sensor data is constituted and operationalized in relation to neighbourhood planning, collaborative policy writing, and environmental health.

Ethnographic Discoveries from an Uncomfortable Impromptu
Speaker Position Nassinma Abdelghafour, Centre de Sociologie de l’Innovation

This contribution tries to make sense of a conference I attended both as an odd, last-minute substitute speaker, and as an impromptu ethnographer. I was doing fieldwork in East Africa, observing a field experiment, following a team of surveyors while they were collecting data and implementing the random distribution of solar lanterns in off-grid villages. The lead investigators of the experiment, based in another African country, were expected to attend the annual program meeting convened by the project’s main sponsor. A series of contingencies prevented them all from going, with the result that I was sent to India, alone, to represent the team. Meeting people from the funding organization and from the other research teams provided me with elements of context I would have otherwise missed, and allowed me to contrast the project I was observing with the other ones. My position was uncomfortable though: I was supposed to defend a project that I had merely been observing, and that personally, I did not find convincing. But this odd ambassador position induced insights I could not have gained otherwise. Attending working groups and brainstorming sessions, I countered my lack of spontaneous enthusiasm for the project by trying hard to make links between what I had observed during my fieldwork and the expectations of the sponsor. Afterwards, measuring the gap I had tried to bridge, and the translations I had operated to hold both ends together, I could describe the conditions of (de)connection of this multi-situated, multi-faceted, transnational research project.

Chair: Andrea Ballesteros, Rice University

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Fairfax B

On this panel, we address the multiple strategies and tactics employed by scientific activists to ensure the future for climate science. The inauguration of Trump coincided with what many climate scientists feared, the administration removed any mention of climate change from the White House website. Quickly after the election, though, scientifically minded activists, including academics in the fields of information and social sciences alongside scientists and technologists, had already initiated a process to duplicate and archive climate data from government repositories. Each paper addresses a different set of problems and possibilities facing this emerging network of scientific activists. Questions range from how to describe these new archival practices, how to ensure the integrity of the data and how to teach these tactics across different disciplinary backgrounds. Exploring the histories of The Toxic Release Inventory Database and Public Lab, we look at these other public science projects for guidance through the process of creating a structured and durable archive for use by activists, scientists, policy-makers, and any other interested onlookers. In doing so, we shed light on the promises and dangers of doing climate science at a time when industry and the state are hostile to its survival. Moreover, by documenting these strategies and tactics as they occur, we hope to be more than an explanatory footnote in the history of science, but rather give rise to an entirely new form of scientific practice, where objectivity and justice are united in practice.

Participants:

Grand Intentions, Small Interventions : Climate Data Rescue’s “Guerilla Archiving” as StatActivism britt paris, UCLA Department of Information Studies

Anticipating the incoming Trump administration’s hostility to climate science, the University of Toronto launched the first “data rescue” event in December 2016, creating a template for a kind of activism it labeled “guerilla archiving” to describe volunteers’ tactics of seeding, scraping, and bagging to disperse federal scientific climate data, documents, and webpages into an international patchwork of repositories. In recent months, similar events cropped up across the United States, guided by the Environmental Data Governance Initiative's (EDGI) Data Rescue efforts. The need for such work became palpable as official statements on anthropogenic climate change began disappearing from governmental websites, within hours of Trump’s inauguration ceremony. “Guerilla archiving” is a neologism – a critical term missing from archival literature. This paper examines Data Rescue’s guerilla archiving efforts to situate the term within archival and critical data discourses and highlight its novelty as a contemporary case of both. Archiving in the face of political expediency is common in many types of radical archival projects. However, while radical archival work seeks to pluralize a community’s narrative through alternate stories and interpretations, EDGI’s web archiving and mirroring pluralizes and distributes the material context of the data. It distributes the data as a public good, generating occasions for data literacy projects which re-envision power and political action related to these datasets. In this sense, “guerilla archiving” exists as a unique example of counter-data action and statactivism, as it imagines new interventions to reconfigure power through distributed data management and use.

Data Driven Communities: Using a Data Rescue Event to Build and Bridge Scientific Networks Jennifer Pierre

The bridge between scientific communities and the general public has grown increasingly strained in recent years, as funding cuts, inefficient communication, and pressure around ideals of scientific efficiency fuel the divide (Wynne, 2006; Ray, 2014). Without adequate public investment in scientific data management and preservation, such strained conditions create prime opportunities for the devaluing and disappearance of public scientific data. Anxiety around these potential outcomes as a result of the 2017 US government administration transition launched a movement dedicated to preserving datasets identified as potentially controversial or at odds with the political agenda of the new administration. A team of researchers at UCLA held its own data rescue event on January 20th, gathering over 60 participants together to nominate federal datasets for archiving. This paper will discuss key takeaways gained from the January 20 event, particularly viewing the event as one method of data use and activism to form meaningful community bonds. An overarching argument presented here is that one of the key benefits of the event and its positioning within a larger network of data rescue efforts is its contribution to an ongoing community building process, both within branches of the scientific community and between scientists and the greater public. Relevant STS literature including Epstein (1993) and Martinez-Alier et al. (2011) is employed to reveal the strengths of this form
of data activism for building community and ultimately weakening the scientist vs. public divide, with an additional focus on the role of digital media in facilitating this process.

Decentralizing Climate Change Data while Preserving Scientific Value

Irene Pasquetto, UCLA

The “Data Refuge” initiative saw the participation of many data archivists and volunteers from multiple North American universities, including, to mention just a few, UPenn, University of Toronto, UCLA, UCSD, MIT, and Harvard. Between December 2016 and March 2017, data archivists selected, downloaded, and stored datasets that were considered potentially in danger to disappear or being deleted under the current administration, and eventually made the datasets available to the scientific community, as well as to the general public, for reuse. These highly valuable climate change data now exist in multiple locations, and possibility in multiple copies. Also, datasets have been organized in novel meta-structures, curated with ad-hoc metadata and tags, and purposefully made redundant. In this paper, I explore how does scientific value travel, along with the datasets themselves, in the Data Refuge initiative. I ask the following questions: When climate change datasets are decentralized and made redundant, 1) How is the evidentiary power and contextual nature of the data preserved? 2) How is the chain of custody, and provenance information, established and maintained? This study is of empirical nature. Data collection include interviews with Data Refuge participants belonging to different teams regarding the ways in which the datasets were selected, nominated to the Internet Archive, downloaded, stored on different platforms, curated, tagged and organized, and made accessible for reuse. Previous empirical work conducted by the author on the scientific practices of data management, sharing, curation and reuse in science also informed this analysis.

Mind the (data) gap: The Community Science Model

Liz Barry, Public Lab

Decades before the Endangerment Clause of 2009 mandated that the federal government must regulate greenhouse gases for their effects on human health, the drilling sites and refineries for oil and gas industries generated local pollution and health impacts for nearby residents, which continues today. To pursue spatial justice, those who live on the fence-line have embarked upon community science research projects to track, monitor, and document their lived experiences in an age of governance by data. Because these “hot spots” of acute exposure are neither tracked nor regulated despite the mandate, community science bridges gaps in government environmental data and regulation too. As a result, community science and its grassroots data archives are an important case study in this moment of a changing role of government in environmental regulation. This paper contextualizes the current momentum to “save” government data with long-term community-based data collection efforts, where activists manage highly impacted environments in the absence of detailed data collection by the government. These community-based efforts have historically focused on gaps in existing government data as part of a call for more and different data collection. Now that government science is under attack by those meant to be its stewards, activists must defend not only the political importance of scientific data collection, but also call for civic engagement by scientists in the community science model.

Chair: Joan Donovan, University of California San Diego

Discussant: Joan Donovan, University of California San Diego

220. Necropolitics

Traditional (Closed) Panel

2:00 to 3:30 pm

Sheraton Boston: Floor 3 - Gardner A

Achille Mbembe (2003) used the term ‘necropolitics’ to account for the existence of ‘death worlds’ within postcolonial geopolitical spaces. While work in biopolitics has privileged the dynamics of ‘making live and letting die,’ Mbembe highlights the importance of both, extending lives and making deaths. In a Foucaultian framework, Mbembe (2013) follows M. Foucault and focuses on posthuman subjects within the politics of death. Contemporary Anthropocene — as a limit of total extinction provoking an intense scholarship around the boundaries of life and worthy lives — is not exempt from problems associated with Western notions of individualism and humanism (Haraway 2016). In certain ways, Braidotti’s approach, along with other vitalist materialisms such as the work of Bennett (2010) or Barad (2007), allow for the generativity of Life to be seen as a material ongoing force that usurps such Western tendencies. While they transcend the idea of death as an exceptionally human experience that conditions political existence, at the same time they tend to reduce processes of death into Life, or ongoing generativity. How can STS research and mobilize the production of boundaries between Life and Death, between Life as organic and that which is Non-Life (Povinelli 2016)? How do we account for processes of differential dying in more-than-Western, more-than-human, more-than-bios, or even, more-than-earth worlds? This panel looks for contributions around the material semiotics of death, dead subjects, and killing/elimination that engage with the processes by which they are maintained, resignified, or disrupted. Welcoming fabulation, empirical, theoretical, or speculative communications.

Participants:

The Yale Language Laboratory, a Study of Method

Jeffrey Wajcberg

What does it mean to say that a language is “living”? By corollary, when can a language be declared “dead”: when there are no more speakers of it, no record, no memory at all beyond perhaps a name? What is lost when a language is lost, and who grieves its passing? My talk considers how, over the course of the twentieth century, the “lifespan” of endangered languages has come increasingly to intersect with the science of linguistics: with the theories that linguists profess, with the collective memory they curate, with the inscription technologies they employ, with the evidence they publish and discuss. To this end, I study a group of linguists who composed the “Yale Language Laboratory.” I consider the work that precedes and the work that occurs in consequence of Sapir’s arrival at Yale in the early 1920s. From this point onward, linguists at Yale examine and catalogue language materials. In my talk I consider the effect of these processes on the languages that have passed away. How has the laboratory served as a nexus for research in cultural anthropology and linguistics, as well as an emergent training centre for the scientific study of language in America—much of which unraveled soon after its leader’s demise. Drawing on archival material from the American Philosophical Society, I examine how linguists developed tools and trained their bodies to apprehend the structure and sound systems of these not-yet-dead languages. I also attend to the speculative futures embedded in the resulting collections—over 160 Indigenous languages in boxes. The analog afterlives of this data demand recognition of language's materiality and suggest modes of care and responsibility that have hence become vital agents in language revitalization movements.

Neural War Zone: Containing Immigrants, Terrorists, and Sex Offenders

Anthony Ryan Hatch, Wesleyan University

New criminological uses of psychotropics fall outside the context of state and federal prisons and creep into the transnational and intimate spaces defined by sexual immigration, terrorism, and sexual violence. In this paper, I interpret a diverse set of official, legal, historical, and journalistic sources to document the uses of psychotropics as neurochemical weapons in a new iteration of psychotrophic warfare. I examine three new and heterogeneous institutional contexts in which this biological war is conducted: warzone prisons, immigrant detention facilities, and in the penal management of sexual offenders. This radical interpretation of the uses and meanings of psychotropics focuses on the ways in which race, nationality, gender, and sexuality intersect to construct a discourse of enmity about enemy combatants, undocumented migrants, and sex offenders. In privately run centers and in the custody of the Department of Defense (ICE) has been accused of forcibly administering psychotropics to civilians awaiting trial and deportation for immigration violations. In warzone prisons in Iraq, Afghanistan, and Guantanamo Bay, the Department of Defense has admitted
Diana Sánchez, UC Davis

Biological human life appears conceptually, and beyond, through a differential exercise with death: That which is dead is not alive. What happens to human bodies after they die? Drawing empirically from this and other questions regarding the materiality of dead bodies, I aim to disarrange commons understandings of what it is to be death and a dead body in a morgue and within the practice of postmortem examinations—necropsies. Based on two years of ethnographic work at the morgues of the National Institute of Legal Medicine and Forensic Sciences in Colombia, I suggest that necropsies are an entanglement of multiple relations among human and non-human actors from which multiple possible diagnoses of death may emerge—even from a single dead body. In that entanglement dead bodies are the socio-materiality from which morgue making takes place. Diagnoses of death are made of them and from them, at the same time that their material realities and death itself are being made. This paper draws inspiration from STS literature on the concept of death, matter and material life, molecular life, laboratory studies and ontological multiplicity to conceptualize dead body decomposition as resistant to the notion of univocal and eventful death. Decomposition dismantles material arrangements and composes ever-new ones as it enacts the process of decomposition itself—death as a becoming. Necropsies as an entanglement of practice speak of this. The material death of a dead body is also the beginning of new ways of life, and decomposition, thus, allows for the composition of multiple possibilities.

From ‘Proletarian Lungs’ to Classed Nonhumans? Or, Does Class Have a Substance? Lee Nelson, RPI

Rather than framing death as a disruptive fissure that determines the end of a living protagonist, both forensic entomologists and blowflies arrive on scene to a story well underway, one ritually told in no small part by the lysosomal enzymes and gut bacteria. Upon entering this milieu, forensic entomologists are informed that categories such as ‘socioeconomic class’ do not in fact end at death, and that they are maintained by the interests of nonhuman-life (Canguilhem) with our decomposing bodies. Boundaries that thus divide ‘subjects,’ their ‘internal’ organs, and their ‘environment’ (Alainmo), as well as life and death, are traversed by class inscriptions. If, as Catherine Malabou states with Foucault, “the emergence of biopolitics is inseparable from the emergence of biology as a science,” what does the ritualization of turning macabre milleus into institutionalized knowledge by the forensic sciences tell us about regimes of dominance? Rather than treating death as being a returning—from dust to dust—a continuous flowing of vital material, or an absolute existential limit, attending to the rituals of nonhuman life that provide temporal and classed knowledge of deaths, offers an understanding of the posthuman character of class. Using Malabou’s distinction between ‘plasticity’ and ‘negative plasticity,’ an understanding of class substance is provided.

Can the Death of a Cow Talk about Ours? Animal Tanotopolitics Producing Modern State Lives Gonzalo Correa, Universidad de la República (Uruguay)

In this paper I want to show the conceptual and methodological guides that addressed the research project “Variations of the flesht” (in spanish: Variaciones de la Carne). Its main aim is to analyse the role of the massacre slaughter of animals (cows) for infrastructuring the state modern lives since the second half of 19th century to the present. This research takes Uruguay as a case, a little republic in South America whose economies is mainly based on the meat production. Based on the concepts of biopolitics, comed by Foucault, and tanotopolitics and necropolitics derived from his oeuvre and the developments of others authors (Agamben, Braidotti, Spero among others), I want to describe the parallel history of an animal tanotopolitics in a global scale (installations of slaughterhouses, an international traffic network) and a human biopolitics in a local scale (the installation of the uruguayen modern state). In order to make that possible, I will introduce the other fields of such as media method: passing a same idea for different instances with the purpose of making visible different perspectives of the problem. In this sense, the four stomachs chosen by me are the uruguay historiography of 19th century (historical dimension), the cow as inspiration for artists (aesthetic dimension), an ethnography in a slaughterhouse about the introduction of an animal stunning box (anthropological dimension) and conversations with consumers and non-consumers of meat (ethical dimension). Given that the research will be ongoing, I will present some progress on these different explorations.

Chair: Mara Dicenta-Vilker, RPI
Discussant: Mara Dicenta-Vilker, RPI

221. Indigenous Knowledges and Technologies I

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Gardner B

Participants:
Growing Governance: Genetically Modified American Chestnut & Indigenous-led Participatory Process Kathleen Barnhill, North Carolina State University

Indigenous worldviews are often framed as naturally opposed to genetic engineering for being rooted in the science of colonialism, and for often being fueled by exclusion from governance processes. When indigenous communities are included in governance processes, engagement or participation activities that seek out local or indigenous knowledge bases often elicit similarly oppositional responses. What if, however, this assumed outcome - that indigenous knowledge systems and genetic engineering are inherently oppositional - is, in part, due to the replication of the power dynamics inherent in many public engagement processes? By being so quick to see participatory
Indigenous Knowledge as Local Response to Globalization and
and institutions in a way that enables and empowers local actors to take part in their own development. Development agents, researchers and donors, who often assume a knowledge or capacity vacuum in Africa, should instead try to tap into indigenous knowledge for locally appropriate ways of forecasting weather systems, traditional techniques of soil management, pest and disease control, adopting suitable crop and animal varieties, and so on. By building on the indigenous we can make development more participatory and sustainable, and also promote intercultural dialogue in African development.

Buen Vivir as a Decolonial, Ecological and Political Construction Adriano Fabri, Universidade Federal do Paraná - UFPR

In the 21st century, the world's attention is focused on the environmental crisis and its threats related to global warming, biodiversity loss, water pollution, air pollution and soil deterioration. These threats threaten not only the quality of life of human beings but the very continuity of human life on planet Earth. In the face of this threatening situation, the search for new ways of relating between society and nature, as well as current, becomes increasingly necessary. This paper proposes a theoretical reflection related to the construction of a Buen Vivir permeated by the decolonial approach and aligned with some elements of political ecology. For this, the multiplicity of existing Buenos Vivires stands out, as this is a project under construction and not a finished concept. But the Buen Vivir referred to in this work is similar to that described by Gudynas, which has three fundamental points: a critique of the neoliberal model oriented to greed, a claim of historically excluded wisdoms and ontologies and finally a change from the hegemonic anthropocentric paradigm to a biocentric paradigm Which allows new ways of conceiving nature and living in society. Thus we propose a theoretical articulation between the decolonial approach that from the Latin American thought proposes a critical reflection from "the south" in relation to the way of being and to think the life and the political ecology that as an intellectual and political movement since the middle of the 1960s to overcome the dichotomy of nature-society from an environmental critique of industrial society with its increasing costs of reproduction of the productive system and its increasing rates of pollution and deterioration of nature, denouncing in this way a radical alienation between industrial society and nature. Finally, this work seeks to contribute to the academic discussions related to the new ways of relating between society and nature as well as the construction of a Buen Vivir, ecological and political decolonization.

Chair: Tiago Ribeiro Duarte, University of Brasilia

222. Making Pasts, Making Futures: Material Practices of Temporal Work
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Hampton A

This session examines how pasts and futures are actively constructed and enrolled in infrastructural and governance projects. Many of the projects we examine are future-oriented. One goal, then, is to explore the mechanisms by which people employ numbers, data, and particular forms of measurement to bring desired futures into being. Such projects also grapple with the past. Indeed, in articulating certain future goals, they must necessarily construct less desirable pasts as benchmarks, anchors, and villains. However there is no clean edge between past and future and the shadows cast by earlier social, material, and technical practices loom large; data legacies, software legacies, and organizational legacies are the platforms on which futures are built. Such legacies, and the ways in which they are enrolled in future-making, shape what is considered possible and doable. These papers address questions about how futures and pasts are artfully constructed in terms of each other, experienced by individuals, and indebted to legacies. The questions our actors face about how to place themselves into historical time also bedevil us as scholars and raise methodological questions. How do we deal with the role of time in
Participants:

Software rot, infrastructure decay – unruly bodies of code in time Marisa Leavitt Cohn, IT University Copenhagen

No software company, platform, or language is immune to the problems of legacy. Software companies that a decade ago were considered cutting edge, now wonder how to avoid “drowning in their code.” Migration services promise to “buy time” for institutions running on legacy systems. Digitalization efforts in the public sector seek to actively “obsolesce” existing work practices. In essence, innovation practices actively coin new legacies. While the performativity of code and politics of the algorithm have been much discussed, less attention has been given to the political implications of how software life cycles are disciplined – how institutions grapple with code’s unruly body over time. In practice, the temporal work of software is multiply figured: as evolvability, legacy, decay, and rot. This raises the question not only of how systems evolve, but about which evolutions are desirable, what counts as regressive decay and what counts as progressive adaptation? In tracking these concerns ethnographically across multiple sites of software work, I note how conversation inevitably turns to the question of vitality - what does it mean for bodies of code to remain vital and lively? Drawing on the work of software maintainers, I work to reclaim the notion of legacy as a generative form of making time with code.

Making the future in the city Leah Horgan, University of California, Irvine; Paul Dourish, University Of California Irvine

Inspired by transparency initiatives and the promise of technological innovation, city governments are increasingly looking towards data – and in particular, open data programs – as a site of citizen engagement and institutional accountability. The language of data and data-driven governance is new, but the data sets themselves often carry with them many complicated legacies, which may be infrastructural (concerning data gathering techniques and technologies of management), organizational (in terms of jurisdictional boundaries), historical (in terms of those things that have been objects of statistical attention), and spatial (reflecting the different visibilities of different neighborhoods, districts, or areas within the city). Based on an ongoing ethnographic investigation, we will discuss how advocates of civic tech negotiate the contradictory temporalities of future-making efforts that both set out to break with the past and yet live within the strictures of these multiple legacies.

What does it mean to be a good hospital? Reconfiguring accountability in healthcare organizations Kathleen Pine, University of California, Irvine; Melissa Mazmanian

The erosion of public trust in healthcare professionals and organizations has forced hospitals to establish new practices of accountability and visibly embrace new forms of performance measurement. In service of measuring, verifying, narrating, and “performing” performance, the healthcare industry in the United States has developed a massive enterprise premised on the capacities of information technologies. Automated performance measurement algorithms and expanded capabilities for data storage, retrieval, and analytics have become critical tools in demonstrating attention to cost, performance, and effectiveness. However, these techniques of future making are radically reconfiguring practices of accountability on the ground – for example professionals have become accountable for adhering to minute work processes rather than to producing acceptable outcomes and organizations are actively redesigning themselves in service of quantified outcomes. In dealing with this new form of accountability, healthcare organizations must reconcile legacies of largely autonomous craftwork driven by a mandate to make situated decisions under conditions of high pressure and uncertainty, with a future in which healthcare organizations are evaluated based on their ability to demonstrate adherence to standardized best practices. In this talk we draw on ethnographic research to describe how these tensions between past and future, autonomy and adherence, play out through situated practices of performance measurement.

Designing the end of the fishery Phoebe Sengers, Cornell University

In 1950, the small Newfoundland fishing village of Change Islands seemed doomed. The traditional, family-centered fishery had collapsed; the future seemed to be a factory-based fishery necessarily centered in much larger communities. Propelled perhaps more by desperation than hope, fishermen in the community took matters into their own hands and constructed a community fish plant. As the plant hurtled towards what was seen in retrospect as its inevitable doom, fishermen, entrepreneurs, and government officials articulated and instantiated competing understandings of how to sort practices, people, and places into the past and future of the fishery. This talk will explore how design imaginations clash and intersect to produce historical pasts and futures.

Chair: Melissa Mazmanian

Discussant: Ingrid Erickson, Rutgers, State Univ of New Jersey

223. Qualitative Methods in the Context of Sustainable Energy Transformations

Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Hampton B

2:00 to 3:30 pm

Qualitative Methods in the Context of Sustainable Energy Transformations

Science and technology are deeply entangled in practices of production, distribution and consumption of energy. As the socio-material orders of energy are complex arrangements of infrastructures, people, artifacts, and knowledge is produced, contested, and implemented in the realm of energy. The field of STS has been substantially contributing to the development of qualitative social research seem to be a fruitful starting point to reflect about qualitative methods of energy research in this context.

Qualitative Methods are important instruments, not only to observe and represent current dynamics of changing energy systems, but also to intervene and critically engage in sustainable transformations. Therefore, this panel addresses the analytical as well as the transformative potentials of knowledge-making. Considering the complexity of path-dependencies, controversies, and imagined futures of energy transformations, the broad repertoire of qualitative social research seem to be a fruitful starting point to ask for the (in)abilities of different methods in use. Particularly, the field of STS has been substantially contributing to the development of innovative empirical approaches in ethnography, discourse analysis, or actor-network-theory. The following questions should lead the discussions of the panel: How do qualitative methods bring to light the heterogeneous knowledges inscribed in discourses, practices, and politics of science and technology in sustainable energy transformations? How do different methods intervene in energy transformations and how could STS scholars increase their methodological reflexivity?

Participants:

Visualizing the dreamscapes of modernity: Analyzing sociotechnical imaginaries in the area of sustainability transitions Alexander Wentland, Technical University of Munich

Sociotechnical imaginaries have become a widely recognized framework for analyzing formations of social order and cultural meaning enacting and stabilized by envisioned technological futures. However, many scholars in STS struggle when it comes to operationalizing and interrogating imaginaries across different forms of empirical data. In my presentation, I would like to demonstrate the value of techniques common in visual studies of
culture by applying them to graphic representations of green multiplicity and sustainability. Engineers, companies, and government agencies in these areas heavily rely on visual depictions of the future in their communication when they communicate scenarios and products to experts as well as the public. Visual analysis directs our attention to often neglected cultural layers of technoscience. Cultural studies and semiotics have produced a wide range of concepts that scholars within STS can utilize, such as symbolism, denotation and connotation, trope, and metaphor. I suggest that this kind of visual analysis can help to get a firmer interpretative grasp on three key dimensions of sociotechnical imaginaries: 1) their public performance, 2) institutional stabilization, and 3) the co-constitution of desires of energy with desirable lives. I use preliminary data from “smart city” projects and commercial technologies associated with sustainability. Since imaginaries are by definition temporally situated and culturally particular, I will discuss cases across multiple countries and regions.

Approaching sociotechnical orders of energy with situational analysis: Intervening in energy transformations through a new methodological perspective Matthias Klause, University of Augsburg; Sarah Glück, Zeppelin Universität gemeinnützige GmbH

Making energy systems more sustainable needs complex recouping’s of multidimensional sociotechnical systems. Science in this respect is assigned with a leading role in searching and finding possibilities and solutions for and the transition to future energy systems. More and more a sensibility for the role of the social sciences in energy research comes to the fore. From a sociological perspective, we look through cultural lenses on the epistemic governance of energy transformations on the EU level as well as more concretely into the debates surrounding hydraulic fracturing in Germany. Drawing from the experience of two social science energy research projects we want to present the challenges, obstacles and boundaries when approaching sociotechnical orders of energy with situational analysis. Situationanalys is a methodology from Adèle E. Clarke, based on grounded theory, symbolic interactionism and discourse analysis. It aims to enable researchers to systematically and analytically describe the ambiguity, ambivalences, heterogeneities and complexity a situation of inquiry entails. Via different mapping approaches it allows: 1) to compare and relate human, material, spatial, temporal and discursive elements, 2) to access social worlds of collective action, which are highly diversified in their level of stability and organisation and 3) to draw attention towards taken but also not taken positions in discourses and discourse formations. If these maps also enable readers to wander more confidently through their living environment, as politicians, scientists or citizens engaged in energy transformation processes, could we then consider these maps as intervening or even transformative knowledge?

Do Multiple Realities Lie behind Apparent Failures in Building Energy Predictions? Catherine Willan, UCL Energy Institute; Paul Ruyssevelt, UCL Energy Institute; Michelle Shipworth

Making our building stock more energy efficient is a key pillar in the response to climate change. In the UK, government has sought to incentivise energy efficiency in the construction industry through contractual targets for public buildings. However, despite the use of specialist energy modelling software and financial penalties for failure, the resulting buildings do not always perform as efficiently as they were predicted to. Through a partnership with a major construction company, qualitative case study data have been gathered from documents, interviews and observations. Using STS traditions in discourse analysis and the ‘ontological turn’, the research uncovers the ways in which energy-related targets are enacted and communicated amongst the diverse actors in large construction teams. It suggests that a multiplicity of different realities lie behind the apparently simple dichotomy between real and predicted performance. It raises questions such as: how and by whom building energy consumption is defined; at what times in the building’s lifecycle performed; should be measured; how uncertainties are recognised in modelling simulations and legal contracts; and, to what extent actors coordinate different realities of the targets during construction. STS has been little-used in construction research, but offers an ideal tool to uncover the complex human interactions behind an apparent technical failure in building a performance. The examination of the ontological and discursive complexity of building energy targets applies STS to new fields of academic interest, but also has important practical implications for industry stakeholders.

Imagining Energy Futures: Competing Narratives and Innovation Policies in the US and Germany Farida Mortada, Harvard Law School

In light of the difficult task to mitigate anthropogenic climate change and reduce greenhouse gas emissions, and the pressing need to meet global demand for economic growth and job creation in the post-oil era, the debate about the future of our energy systems and the role of innovation in renewable energy science and technologies continues to take center stage. While iterations of the broader goals seem similar (i.e. the replacement of the longstanding system of polluting, extractive and finite fossil fuels with alternatives that promise to be clean, efficient and sustainable), countries show striking differences in their imaginaries of energy futures, the design of energy technology innovation policies and the extent to which citizens participate in determining technological pursuits towards new ways to power modern life. My paper is a comparative case study of competing imaginaries of energy futures in Germany and the United States. Using the analytical framework of “sociotechnical imaginaries” developed by Jasanoﬀ and Kim and drawing on insights from studies on innovation theory and policy, I explore how narratives about renewable energy futures and the role of technological innovation rose to political salience in the two countries since the 1970s and how within each country different visions held by state actors, stakeholders and citizens are negotiated, contested and performed. I highlight critical junctures where anti-nuclear and environmental movements on grassroots levels and policy entrepreneurs at state and federal levels seek to change the narratives of energy futures and to engage in a creative process of institutional design aimed at finding alternatives to the conventional energy industry. By doing so, I hope to tease out different articulations of and alterations in the normative discourse on renewable energy transitions in the two countries, and to show how different narratives that emerge from social and political conﬁicts help endorse different legal and institutional arrangements, with far-reaching consequences for technological change, industry, and the democratization of energy.

Discussant: Mirko Suhrari, Zeppelin University

224. Integrating STS scholarship into exploratory teaching research approaches in STEM education Traditional (Closed) Panel
2:00 to 3:30 pm Sheraton Boston: Floor 3 - Jefferson

While the unknown pervades both everyday life and professional science, it is excised from most instruction and even research in STEM when students and/or researchers are expected to follow established routes to well-known outcomes. In contrast with practices of getting to results without acknowledging any uncertainty, learning and living are steeped in uncertainty. Historical and ethnographic studies of science and technology document the complex, diverse, and convoluted ways by which tentative understandings of natural behaviors come about. Science understanding deepens through exploratory participation in observing, acting, experimenting and thinking, where intellectual, social, and other risks are fluidly undertaken. STS scholarship demonstrates that uncertainty, confusion, questioning and exploring enable productive ways of engaging with the world. Drawing on these findings, the presenters in this session
adopts such exploratory practices in education. Teaching, learning and research are inseparable in these studies that document, envision and narrate from experiences where researchers, teachers and learners venture into the unknown together as investigators, departing from conventional classroom values. Students of Petra Lucht conduct research projects that reveal how gendered politics are encoded into artifacts and practices in STEM fields. Regarding teachers’ dominance in speaking as ‘selfish’, Arthur Galamba proposes peer-tutoring in which peers express ideas, argue, explain and learn. Curiosity evolves interactively among learners as they explore physical phenomena collaboratively with teacher Elizabeth Cavicchi. Extending from and beyond his exploratory experiences in Cavicchi’s seminar, Jais Brohinsky develops mathematical, astronomical and pedagogical experiments involving teens and university students. Participants:

Exploratory practice of teaching feminist STS to students and researchers in STEM Petra Lucht, Technical University Berlin

How to convey the question “How artifacts do gendered politics?” to students and researchers in STEM? In this paper I will present how feminist studies in science, technology and society (Feminist STS) may become integrated into study projects and qualifying theses by bachelor, master and doctoral students in STEM fields through drawing on exploratory, constructivist teaching-research approaches. This approach opens up time and space for reflections and for inventions of alternative ways of defining and transforming a given research problem or task in STEM. The seminar starts with explaining an assigned task in a STEM field in-depth. Over a time span of a couple of months this task is being explored by students in an exploratory teaching-research seminar. Through referring to an integrated research design model of qualitative research (Maxwell) students learn to analyze how the STEM task at hand is ‘gendered’ with regard to its contexts, concepts, theories, research questions, prospected results, applications and uses. In this exploratory teaching-research seminar students and researchers of STEM fields learn how to develop gender studies analyses in relation to a given task in STEM. Over time, they re-shape and transform an initially assigned task that was framed in STEM to a project that integrates feminist STS into a pre-given research design. Study projects from computer science, medical technology, landscape architecture and mechanical engineering will illustrate the outcomes of this teaching-research approach.

The Selfish Teacher Arthur Galamba, King's College London

Ask experienced teachers how they developed their subject knowledge and they will probably tell you that much of what they knew is a result of teaching. We contend that teachers, whilst speaking, are rewarded with the organisation of their thoughts and gain a deeper understanding of the subject matter, even though they may not be aware of this. We build on this to argue that knowledgeable and enthusiastic science teachers, particularly those described as passionate teachers, can be ‘selfish’ by reserving for themselves the opportunity to organise and express their ideas. They also prevent pupils from enjoying talking to other people about the subject they like. We suggest teachers’ selfish behaviour can be explained by the Selfish Goal concept. This is a motivational psychological model which aims at accounting for human beings’ sometimes contradicting behaviours, which we contend also explains teachers’ selfish behaviour. We suggest that science students will do better if they are given opportunities to teach the subject and argue for peer-tutoring as a successful teaching method, which has been largely ignored. By finding opportunities to teach as close as possible as teachers do, students will develop deeper understanding of content knowledge, develop their argumentation skills, and validate their ideas in the social plane with teachers and peers. We claim that, whilst humanising science education, peer-tutoring resolves some of the criticism constructivism-based approaches have faced, such as the relationship to discovery learning and its apparent acceptance of scientific relativism.

Curiosity Opens Learning and Teaching: Explorations in Science and History Elizabeth Cavicchi, Edgerton Center, MIT

Curiosity provokes us into opening relations with something unknown. In being encouraged to act on curiosity, learner’s own agency impels questions and explorations. This presentation relates from my university seminar that applies the research pedagogy of critical exploration in the classroom by providing opportunities for learners’ curiosity to emerge and evolve. For example, while observing nightfall as a class, ambiguity over what we were observing, along with confusion in our sighting methods, gave space for taking a deeper look. Spontaneous questions express learner’s thinking: “is that a plane or a star?” or “does the angle of Venus depend on my height?” Measurements with a sextant exposed disparity in classmates’ interpretations about what constitutes the horizon: water’s surface or a distant hill. A historical astronomy text provoked perplexity about the horizon boundary between Earth and distant heavens. As diagrams of Earth, horizon, and heavens were constructed interactively by classmates at the blackboard, there arose openings to doubt and concerns not expressible before, setting off new diagrams and critiques. In these experiences of acting on personal curiosity, listening profoundly to others, wondering at the world, science learning is inextricably investigative, creative, and about community rather than individual study. The narrative that evolved was surprising to both teacher and students.

Teaching is the work of building faith in realities of nature and human curiosity, realities too often shrouded by pre-scripted instruction. Horizons of teaching and learning, alongside those of heavens and Earth, are under discussion, doubt and development by students and teacher together.

Discovering Time: Explorations in Astronomy and the History of Science Jais Brohinsky, Turtle Island Preserve and Harvard Graduate School of Education

‘The clock lies!’ - Student investigating afternoon shadows Paying attention is hard work. It can be terrifying to see the world through fresh eyes without imposing what we think we know or what we’ve been taught we should know. We avoid confusion, especially in educational settings where it is often related to failing. Yet, it is only within this space of uncertainty, only by adopting the mindset of beginners, that the taken-for-granted phenomena on which we build our daily lives (phenomena like time, calendar, location) can be recognized as far less known than assumed. In fact, these foundational phenomena are downright mysterious, as any dedication to observing the moon or watching shadows will reveal. The curiosity resulting from such discoveries opens avenues for exploration and reconnection to physical systems that technologies like digital watches, electronic organizers, and GPS preclude. Such a pedagogy places authority in the physical world and motivation in student curiosity. Through a combination of observation, journal-keeping, and the study of texts from Archimedes to Galileo, my colleagues and I rediscovered the physical phenomena of time, calendar, and terrestrial location, and began a process of unifying the different systems that explain them.

Chair: Petra Lucht, Technical University Berlin

225. Knowing Humanity in the Social World - The Path of Steve Fuller's Social Epistemology

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Kent

This session is on the issues included in Francis Remedios and Val Dusek's book, which covers Steve Fuller's work since 2000 and will be published by Palgrave Macmillan in 2017. Remedios and Dusek argue that Fuller’s vision of social epistemology continues the political and policy focus of his earlier work, but since 2000 it has been increasingly founded in the changing conception of humanity, especially as these project into a 'post-' or 'trans-' human future. We assess Fuller's work on the following issues: STS, the university and intellectual life, neo-liberal political economy,
intelligent design, Cosmism, Gnosticism, agent-oriented epistemology, proactionary vs precautionary principles, and Welfare State 2.0. We are especially concerned with Fuller's response to the changing boundary conditions of the knower due to anticipated changes in humanity coming from the nanosciences, neuroscience, synthetic biology, and computer technology. For Fuller, the result is an extended sense of the knower, or 'humanity 2.0', which Fuller himself identifies with transhumanism. Other than Fuller's work, there is no other discussion in the recent literature of sociology STS, philosophy of science, or analytic social epistemology which brings such a wide range of resources and considerations to an assessment of the impact of the technosciences on the concept of humanity—especially the extent to which these changes might constitute ‘improvements’ to the human condition. At the same time, Fuller's turn in this direction has invited a lot of criticism as his earlier work. The panel will explore these matters from a range of perspectives that correspond to the breadth of Fuller's work, to which Fuller will then respond.

Participants:

Knowing Humanity in the Social World - The Path of Steve Fuller's Social Epistemology
Francis Remedios, Independent Scholar

The need that this book aims to satisfy arises from the lack of a comprehensive summary and integration of all of Fuller's work. Fuller has been a major figure in social epistemology who has written on normative issues of the social organization of knowledge. However, over the last sixteen years Fuller has turned increasing attention to the foundations of the social science and humanity. Because of this later turn of Fuller's thought, nowhere has his whole theory been comprehensively covered. This book will be the second book on his social epistemology in English. (One such book exists in Spanish.) I am the author of the first book, Legitimizing Scientific Knowledge (LSK), on Fuller's social epistemology. Since LSK was published in 2003, Fuller has published multiple books, changed the course of his social epistemology from normative issues on how scientific knowledge should be organized to normative issues on humanity as the foundation of social sciences. This is a major shift in his social epistemology. Since Fuller's books do not provide a systematic account of Fuller's project, this book aims to track the shift in Fuller's social epistemology. Since LSK was published in 2003, Fuller has done a lot of public intellectual work including his testimony at the Dover intelligent design trial. People tend to know Fuller's work in bits and pieces, and criticisms of Fuller are normally done without the proper context for putting together those bits and pieces. This book will attempt to remedy that long-standing problem.

Fuller's Science Studies, Intelligent Design, and Alternative Theology
R Valentine Dusek

First, I shall discuss Fuller's Critique of Science and Technology Studies in SSK, Latour, and Kuhn as source of SSK, and contemporary philosophy of science. Fuller evaluates science in terms of its public presentation and allocation of resources for benefit to society. He criticizes philosophy of science in its "underlaborer" role, cheerleading for existing science. Fuller ingeniously presents many parallels between scientific and religious debates. I shall then treat Fuller's Intelligent Design (ID). Fuller's presents medieval accounts of humanity in relation to God, contrasting humans as animals versus in God's image, and Darwin's relation to Epicurus and Hume concerning chance and attitudes toward the future. Contrasting natural history with the engineering approach, links the latter to ID, and claims evolutionists are tied to old-fashioned natural history. I question this dichotomy. Finally, I discuss Fuller's relation to Gnosticism and theosis. Fuller is described as Gnostic, based on an outdated notion of Gnosticism. His views are more like eschatology. Fuller in turn accuses biologists who reject biological race as Gnostics. I take issue with this claim. Fuller recently has seen the similarity of his views to Russian Orthodox theosis, humans unifying with God. Fuller's 'Humanity 2.0' shares with the theosis tradition the goal of humans controlling all of nature and spreading through the universe by means of space travel.

The Path Forks at Dover: Social Epistemology for the One and for the Many
Jim Collier, Virginia Tech

After Kitzmiller v. Dover School Board (2004), social epistemology presumably entered a “third stage of normative reflection”—a stage dominated by Steve Fuller’s call for “maximal human experimentalism” (Lynch 2016). While advocating for such experimentalism invites us to renew historical censures for licensing abstractions, theological or otherwise, to soft sell eugenics, in this presentation I address the presence of the messenger more directly than his message. As the subtitle of this panel suggests, social epistemology—the social epistemology discussed at 4S, not APA, meetings—remains largely in service to the work of Steve Fuller. Of course, much academic work relies sibyllogistically or parasitically on the work of canonical figures. Yet, in this presentation, I examine the reflexive problem of a social epistemology conducted in deference to, and often in imitation of, a singular thinker. In part, the reflexive problem comes out of Fuller’s own arguments against deference. More generally, however, I argue for a difference between how one pursues knowledge given science as an object of inquiry, and how one pursues knowledge given social epistemology as a practice of inquiry. I suggest that Fuller uses science as a means, posed in various abstract guises, to underline polemics that lend accidental or false significance to social epistemology. To pursue social epistemology in a less grandiose fashion entails, perhaps, negotiating norms having more to do with radical collaboration, than with personal experimentation.

Fuller’s Faustian Bargain
Robert Frodeman, University of North Texas

Steve Fuller's defense of transhumanism constitutes a fully-fledged philosophical defense of infinity. This is no mere exercise in philosophic wool-gathering: like the proposals emanating from Washington today, Fuller’s views deserve to be taken seriously, not least because of their reach into policy circles. Fuller’s promotion of the proactionary principle functions in the service of a transhumanism that would result in “restructuring the governance of the planet, if not the universe, to realize species-level ambitions” (2014, 6). These ambitions are the extended, if not infinite, development of our faculties, whether in an improved version of our current simian form, or in another perhaps cyborgian or silicon configuration, and the seeding of the universe with transhumanist spawn. Fuller’s interests are fundamentally eschatological in nature: a program of libertarian technological advance whose endpoint consists in derification. It is not clear that this project constitutes self-deification: the result of the processes that Fuller advocates may not be individuals who attain god-like powers, but the creation of a Borg-like or hive mind—an act of will that bypasses one’s own will altogether. To achieve these goals Fuller embraces a libertarian political ethos of the deregulated state; he is also willing to accept some significant degree of social disruption and human suffering for the achievement of his utopian vision. Fuller, however, provides no account of what we would do with all this time and prodigious abilities, of how would Humanity 2.0 deal with the boredom of infinite existence. More prosaically, there is no serious account of problems such as the impossibility of continued births, and the political dangers resulting from the jealousies of 1.0 humans.

Chair: Francis Remedios, Independent Scholar
Discussant: Steve Fuller, University Of Warwick

226. The Sensibilities of East Asian STS: Strategies, Trajectories, and Visions I

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 5 - Public Garden
has become a growth field, where, as at the 4S, people from different
Participants: derived from this sizeable scholarship with particular awareness that STS
come to challenge, supplement, and rearrange theory from the Global
North (traditional STS), theory from the Global South, postcolonial theory
or subaltern studies from India, or white settler postcolonial theory from the
antipodes. The historical antecedents of STS in Asia are undergoing
dramatic re-narrations; they have answered contemporary needs to go
beyond “methodological nationalism,” which uses zombie categories long
after they have become destabilized by national boundary crossings at all
scales and levels. The anthropology of STS in Asia requires new
methodologies and planning orientations that acknowledge the
 technological and science and that entail profound changes in human-
technology-nature investments. STS in Asia manifests in variegated
configurations from more politicized contests in the STS communities of
Korea, Taiwan, and Japan to more development-oriented technoscientific societies, where the east Asian states are eager to
develop national science and technology and as a consequence,
neither a compatible alternative to biomedicine nor a component
of biopolitics in China, the making of Asian medicines, and the
history of technology via EASTS. Through special issues on the
studies can make contributions to medical history or to the
problem-solving Research and Development Program (SR&D).
On the one hand, attempting to reframe the goal of S&T from
enhancing the economic development to improving the quality
of life of ordinary people, the SR&D program calls for radical
changes in the direction of S&T policy and the relationship
between society and S&T in Korea. On the other hand, while the
program has promoted social needs-based scientific research and
the public participation in the research process, the strong legacy of
S&T for the economic development has remained. Thus, social
needs have been emphasized as a source of new economic
growth and public participation has been conceptualized in terms of
the end-users’ involvement in the innovation process rather
than democratic ideals. By examining the political implications of the SR&D program and the strong legacy of the traditional
S&T policy, the potential contributions of EASTS to promote
S&T for better society in East Asia are discussed.

STS in Post-311 Japan: Methodology, Strategy and Adaptation
Togo Joseph Tsukahara, Kobe University
In this presentation, I would like to report current situation of
Japan's STS. After the triple disaster of 311 in 2011, Japan's STS
community is straggled, even to the extent that it is divided.
Nuclear power plants are reactivated under Abe administration
despite serious Fukushima incident of melt down; thyroid cancer
discovered more than 170 children living in the vicinity of the
disaster site. What can and can not S&T do for this? Should STS
be more taking the side of social justice and behave like resistant
whistle blowers, or should S&T remain science communication
tool and enlightenmental authoritarian? It can be viewed the mental
Japan after 311 is more likely to be US-sub-colony in terms of
techno-policy (as an obedient agent of IAEA). In this regard,
should S&T in Japan apply post-colonial historiography to
analyse current situation of Japan as sub-Trampian state? Post-
normal approach may be one of the solutions for the citizen’s
science movement, but in the macro-perspective, where should
post 311 Japan go?

Tracing Living Traditions: Asian Medicines and Their Paths
toward Modernization
Wen-Hua Kuo, National Yang-Ming University
Drawing from the papers in EASTS and my own research on the
globalization of traditional Chinese medicine (TCM), this
presentation focuses on how Asian medicines are understood as
neither a compatible alternative to biomedicine nor a component
of non-Western culture that has been perceived as unscientific
and obsolete. In EASTS, these methods and practices of healing
are regarded as living traditions that continually change over time
and transform as they spread throughout Asia and beyond. The
conventional dichotomies of modern/traditional,
space/time, and science/humanities, and Western ideas/Asian material fail to
guide our intellectual inquiries concerning how Asian medicines
became what they are; instead, through the lens of STS studies,
papers in EASTS attempt to capture moments in which
progressive narratives on biomedicine are disputed, conflicting
modes of treating illness among different medical systems and
between physicians and their patients, and changing therapeutic
landscapes in response to the circulation of medicinal materials
and associated healing claims. It is also in this sense that STS
studies can make contributions to medical history or to the
history of technology via EASTS. Through special issues on the
globalization of TCM, contemporary Tibetan medicine, criticism
of biopolitics in China, the making of Asian medicines, and the
knowledge and value associated with Chinese and Indian
healings, EASTS not only aims to demonstrate the technical
aspects of medical practices that are currently understood in
history, it also hopes, using Asian cases, to reflect core issues in
the history of technology, such as non-Western modernities, the
social construction of technology, socio-technical systems of
non-biomedical therapeutics, and users involved in the making of
new technologies.

Seeing Like an Asian: ‘Asia as Method’ Narrative for East
Asian and the US STS Sungwooo Ahn, Virginia Tech
The U.S. is an ‘East Asia’, if an ‘East Asia’ is the place where

Beyond the Engine of Economy: New Social Challenges to
S&T in East Asia
Hee-Je Bak, Kyung Hee University
As representative developmental states, East Asian countries
have mobilized science and technology nationally for catching up
advanced technologies of the West and enhancing the economic
growth. The scholarship of STS has long contributed much to our
understanding of the legacy of Latecomers and the state-driven
S&T in this region. Despite the success of Latecomers in
achieving their economic goals, however, there has been growing
social criticism that scientific and technological research has
been serving only industries while it has failed to meet the
general public’s needs. The increasing political demand for
public participation in S&T is the best example which reflects
such criticism. For the last decade, Korea also witnessed the
growing concern about what should be the goal of S&T
especially funded by public money, which led to the Social
‘East Asians’ are living. In some way, the U.S. is the real East Asia than the East Asian region because ‘East Asian’ or ‘Asian’ has never been the primary self-identity of the people living in the vast region filled with numerous countries, while the Asians are ‘Asians’ in the eyes of the European-African-, and Hispanic/Latino-descents in the U.S. As a way of making the STS’s analysis of biomedical and health research regarding race and ethnicity more sensible to the ‘Asia as method’ narrative, this presentation exemplifies the current biomedical research and related regulatory practice in the U.S. as well as East Asian countries through which the existing and new identity of East Asians has been reflected and constructed within biomedicine and beyond in a similar as well as different way in the two regions. To fill the comparative approach to the research and regulations regarding East Asian biology/pharmacology and health in the U.S and the East Asian countries, the paper suggests that understanding the context-dependent development of the ‘East Asian discourse’ is necessary to de-essentialize and contextualize East Asian identity and ‘Asia as method’ narrative, by which the heterogeneity as well as homogeneity within East Asian society will be recognized within East Asian and the US STS. For this, I will introduce two twisted sets of research and national authorities’ regulations regarding Asians’ biomedical characteristics: one set from the U.S., the other set from the East Asian countries.

Through the comparison between the research and regulations of (East) Asians health and biology, we can observe that ‘East Asian’ has been constructed as a sandwiched concept in between broad identity of Asian and national identities of East Asian region. The new US FDA guidance regarding the collection of race and ethnicity data in clinical trials in 2016 illustrates the context-dependent characteristic of East Asian identity in biomedical research in the U.S. In the meantime, the regulations in the East Asian countries for the approval of new drugs also show that the national boundary is still functioning as a gatekeeper in biomedical issues, although ‘East Asian’ is an emerging bio-regulative identity especially to streamline the process of drug approval. However, East Asian identity appears in a different way in biomedical and health research in the U.S and East Asian countries. Biomedical research in the U.S. displays that ‘(East) Asian’ identity has become a strong category because of the relative underrepresentation and ignorance of the category in the U.S from the viewpoint of ‘Asians’. While the approach to the category of East Asians in the East Asian countries is rather nationalistic; however the East Asian category becomes an important element if the studies are mainly seeking the U.S. audience and journals.

Chair: Wen-Hua Kuo, National Yang-Ming University
Discussant: Michael M.J. Fischer, M.I.T

227. STS, Critical Design, Critical Digital Humanities III

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 5 - Riverrway

This track aims to bring together scholars working at the intersections of Science and Technology Studies, politically-engaged Design and Making work (including Speculative and Critical Design & Making), and the Critical Digital Humanities, in order to share perspectives on the methods, challenges, and stakes of “doing” STS and the humanities in material and digital form. This track is envisioned as a critical complement to the “Making and Doing” event—while the Making and Doing event affords the ability for STS scholars to showcase their design work, this track affords space for critically reflecting upon the spaces, ideologies, mediations, and politics embedded within and enacted through the intersections of STS scholarship and materially-engaged design work. Possible paper topics include critical analyses of current and previous STS-engaged design and digital projects (including the presenter’s own); reflections on the institutional, infrastructural, and ideological constraints of doing alternative and materially-engaged scholarship; issues of the power and position of scholars designing and making in academic and non-tangentially-academic spaces; potentials and risks of doing interpretive and critical scholarship via technologically-mediated design work, and in particular for STS and humanities design. We are particularly interested in critical perspectives on design from feminist, postcolonial, and queer standpoints, and on design and DH projects, spaces, and methods that specifically address questions of power, oppression, access, ontology, and materiality. We also extend invitations to “making and doing” scholars engaged in STS-related work in interesting fields, including Media Studies, Literature & Science, and Design.

Participants:

- Designing for Distributed Sensibilities: Challenges with Community Wireless Mesh Networks Dawn Walker, Faculty of Information, University of Toronto
  As the material practices of “going online” are routinized for a wider audience, a dominant and technically-mediated mode of communication over distance is rendered insensible. Part of this arises from a functionally-obscured construction of those mediating technologies—computers and handheld devices through to the ubiquitousness of smartphones. Community wireless networks, in particular mesh network projects, address this ‘black boxing’ of networking technologies through open-source software and hardware development along with local, non-hierarchical organization in order to build networks for public access (Powell, 2008). In their design and material instantiation, mesh networks rely upon alternative, yet still highly technical, discourses of grassroots infrastructure decentralization as well as open access. In this paper I reflect on my design work as part of the ongoing deployment of a local mesh project in Toronto, Canada. Less than a year old, the group is using off-the-shelf hardware and custom-scripted open source code to create mesh nodes. Emphasizing the contrast between the construction of these immediate, “messy,” local mesh networks and a more obscured, “abstract” internet, I draw parallels from these differing technical mediations to a notion of located accountabilities (Suchman, 2002). Further, I follow recent scholarship that argues these alternative networks can be more productively construed as complementary to the internet rather than contradictory—seen as hybrid spaces of local cooperation that act as “boundary objects” which facilitate interdisciplinary interaction (Antoniadis, 2016). Drawing upon this work, I identify opportunities for materially-engaged scholarship to investigate how located design of complementarily mesh networks could lead to distributed sensibilities.

That’s not my job: infrastructure vs. hacking in digital fabrication processes Nadya Peek, MIT - CBA

Ideally, digital fabrication such as 3d printing or CNC milling enables anyone to print anything at any time. Practically however, the infrastructure provided by commercially available digital fabrication equipment is limited to specific use cases. For example, typical fused deposition modelling 3d printers work poorly for objects with large overhangs and produce parts that are not structurally sound. These limitations are not apparent from the descriptions of the machines; tacit knowledge of fabrication processes is required to leverage the strengths of different digital fabrication machines. The empowerment and democratisation messages of the maker movement can ring hollow when a user first fails to make the object they intend. Drawing from observations in a computational design studio, a sheet metal fabrication corporation, and a company which sells robotic arms, I draw a distinction between the infrastructure provided by commercial digital fabrication equipment (including hardware, software, and support services) and the experience of these respective practitioners. To produce particular parts such as curved perforated metal sheets or intricately formed but high-performance ceramics, each practitioner ‘hacks’ their equipment. The workflows that result highly iterative and divergent. I conclude with an analysis of what motivates infrastructural development in digital fabrication and manufacturing as opposed to the workflow-specific ‘hacks’. This analysis is both a critique of dominant forms of advanced manufacturing and a basis for building new versatile tools for
Articulating the Sensibilities of Social Media II

The socio-political implications of ubiquitous access to rapid video recording and distribution, particularly 360-degree video and live-streaming? Drawing from Walter Benjamin's seminal essays including "The Work of Art in the Age of Mechanical Reproduction," and "The Storyteller," and Jacques Rancière's notion of politics as the distribution of the sensible, this paper posits the liberatory potential for a "politics of perceptibility." It addresses how these new systems and practices can challenge social and political subordination and inequality originating from and reinforced by residential and discursive segregation, developing what Iris Marion Young described as "differentiated solidarity." Also, it empirically studies the cases of Black Lives Matter and the indigenous movement at Standing Rock -- the latter introducing the use of drones to publicize in dramatic-yet-immediate form violent state-police action against demonstrators. The project also, in-keeping with the spirit of Benjamin's work, contends with darker potentials for the appropriation of such systems by resurgent authoritarian populism. This thread focuses on the cultural politics of the Italian fascism, namely how mass rallies were used to affectively transform Italian citizens into participants in the fascist movement by collapsing the liberal distinction between the private and public sphere -- creating a pseudo-public of strategic non-rational rhetoric wedded to fascist action. It examines how the continued development and intensification of "the digital enclosure" (Andrejevic, 2007) blurs the public and private in a way that is also ripe for similar exploitation, particularly in light of these new video technologies.

For better or for worse: Problematizing a union with software

Sarah Beth Evans, North Carolina State University

Technological expertise is associated with masculinity (Hacker, 1990; Wajcman, 1991), especially expertise with particular forms of technology such as digital games. This bias is particularly troubling for females whose expertise in gaming is tied to their livelihood, such as educators who research games and teach courses centered on digital gaming. When feminine women perform jobs in this sector it is essential for them to demonstrate their credibility through aligning themselves with the associated technologies (via expertise and familiarity in both skill and discourse). However, this union is not without consequences as the technologies themselves contain biases, affordances, and constraints that have the potential to do harm. This paper explores the limits associated with my subjectivity employing a specific software object for use toward disrupting entrenched hierarchies in game design. As a young, white, femme woman teaching game design in an undergraduate game studies classroom, the process and consequences of my relationship with the software that I teach my students (the beginner digital game design tool RPG Maker VX Ace) acts as a source of credibility while simultaneously perpetuating the inequities my pedagogy attempts to combat. Through pairing an analysis of ethnographic observations, self-reflections, and student work collected from a large Southeastern university's game studies classroom with a critical software analysis of the digital game making tool RPG Maker VX Ace, this study identifies the role(s) and associated consequences of RPG Maker VX Ace as an agent of empowerment, resistance, and potential harm within the context of the study. Hacker, S. L. (1990). "Doing it the hard way": Investigations of gender and technology. Boston: Unwin Hyman. Wajcman, J. (1991). Feminism confronts technology. Cambridge: Polity.

Chair:
James Malazita, Rensselaer Polytechnic Institute

Sheraton Boston: Floor 5 - The Fens

Articulating the Sensibilities of Social Media II

Traditional Panel
2:00 to 3:30 pm

As a communication technology, social media pertains to a myriad of STS theories. Yet, given social media's popularity and fluidity, it is unclear if existing theories are sufficient to capture its role in transforming established practices with respect to science-making. This panel invites papers to articulate the sensibilities of social media in relation to STS. Possible topics include, but are not limited to, the following: 1) To what extent is social media a citizen science? How do citizens contribute to advancing the science of social media? 2) Is it appropriate to use social media for purposes beyond personal communication? When using social media in public health promotion, emergency preparedness, and STEM education, what may be relevant analytic and security concerns? 3) How can we utilize social media to measure, operationalize, and refine STS concepts, such as expertise, collaboration, networks, and diversity? 4) Can we rely on default metrics (e.g., likes and shares) to evaluate social media? How can we better utilize social media's big data? 5) How do social media platforms (e.g., Facebook, Twitter, Instagram) enable and/or restrain transnational scientific work? To what extent do these platforms envision, promote and undermine specific future imaginaries? 6) What is—and is not—social media in the Internet world? Is it necessary to give social media a formal definition? We welcome papers that address these and similar topics, adopting any theoretical orientation(s) and empirical approaches. Perspectives from outside STS are also welcomed.

Participants:
Avatar: Multiple or Disrupted?—A research on the identity in the age of Internet Xiaoju Dong, Institute of Science, Technology and Society, School of Social Sciences, Tsinghua University

Today, technology and its developments have an increasingly crucial impacts on people’s lives. Along with these developments, technology has also constantly redefined the concept of "self" and "identity" of human. In recent years, with the rise and expansion of virtual social networks and online games, people can freely create Avatars on the network by which they can participate in the network activities. Many scholars argue that the Avatar created in such conditions, which correspond to people's needs, represents a particular aspect of the real-life personal identity, perhaps the potential one. Besides, they think that the relationship between online identity and the offline is a parallel one, thus people can have multiple identities and be flexible in the conversion of multiple identities. However, such a view seems to indicate an optimistic attitude towards technology, since it seems that people regard technology as a helpful method for them to explore different aspects of oneself, nevertheless which is not the fact. Furthermore, such a view does not give an appropriate account for the identity and the changes it has suffered in nowadays. Therefore, in this paper, I want to elucidate that Avatar does not represent different aspects of the multiple identities; on the contrary, identity has been divided into pieces, and the Avatar represent such a disruption of identity. Such an identity is not multiple, but a disrupted one, which has many deadly shortcomings. Then I attempt to give some ideas about how to rebuild the wholeness of identity, by virtue of the phenomenological reflections on technology. Since we live in an age abounds with Internet and AI, such a reflection of identity may help us reconsider the relationship between technology and us, and rebuild a critical and rational view towards both the benefits and disadvantages of the developments of technology and science.

Translating New Media Practices on Gay Dating App

Socialities in Translocal, Telepresent Manila Paul Michael Leonardo Atienza, Department of Anthropology, University of Illinois at Urbana-Champaign

Sociotechnical infrastructures aid in the movement of material and ideological products that allow societies to form and function. These infrastructures are made up of messy entanglements that may easily be simplified as part of the global North’s ongoing extraction of labor and resources around the world. But Anna Tsing (2005) reminds us that we are not part of one single imperial system, instead "[c]ultures are continually co-
produced in the interactions [she calls] ‘friction’: the awkward, unequal, unstable, and creative qualities of interconnection across differences.” (4) Attuning to the frictive processes and interactions between multiple scales of people, nations, and corporations remind us of the generative possibilities of these varying and unequal encounters to new formations of power and culture. Looking specifically at the circuits of migration and exchange that have characterized the contemporary Filipino as global laborer extraordinare, a situated study of sociotechnical infrastructures complicates and adds to the crosscurrents that bind sites of transnational Asia/America. In this paper, I highlight practices that destabilize discursive regimes that interpret gay dating app connections as carnal and erotic practices aiding in the circulation and uptake of ethnoracial demographic statistics. As sociological construction of technology scholars have demonstrated, artifacts released to publics will generate situated and unintended user practices. Amid what visual studies scholar Sarah Chaplin (2011) considers a distributed city, a time/space where information technologies produce “the intangible non-place of the telepresent.” (43) We must acknowledge the symbiotic or paratactic—a side by side—relation to human engagement with cyberspaces in order to track the ever changing communicative practices within our parallel and simultaneous digital lives.

On Grindr and the Politics of the Uset
Tyler Easterbrook, University of North Carolina at Chapel Hill

This presentation explores the gay social networking app Grindr as a case study for considering how user politics function in the twenty-first century. Launched in 2009, Grindr describes itself as a “global community for men of all backgrounds to connect with one another.” Just what it means to connect on Grindr and what this reveals about the possibilities and perils of user politics is the focus of my inquiry. Drawing on foundational STS research on user-technology relationships as well as more contemporary scholarship on Grindr, I analyze the app’s interface and contexts of use, arguing that interactivity on the app refines an atomic and intensely individuated notion of the user. This ‘user-function’ prescribed by Grindr’s interface dovetails with concerns about the limitations of neoliberalized subjectivity and complicates the app’s potential in forming gay solidarity in the twenty-first century. Ultimately, my analysis opens up new ways for STS researchers to theorize the role and significance of users in contemporary sociotechnical systems.

Live Streaming Changes Video Game Testing: Observing Contextual Player Behavior over Video Streaming Services
Eric Nelson Bailey, Japan Advanced Institute of Science and Technology; Yasunobu ITO, Japan Advanced Institute of Science and Technology (JAIST)

Creators of video games need methods for judging the effectiveness of their designs with players to ensure their creations engage and satisfy intended audiences. Traditionally, they have relied on monitored game testing sessions with players conducted in offices or testing laboratories. However, this artificial setting removes people from the context in which they interact with video games and fails to capture the true play experience. With the recent rise in popularity of live streaming through services such as Twitch.tv, YouTube Live, and Hitbox, players from around the world are broadcasting their video game experiences live and unedited from their living rooms and bedrooms to an audience over the internet. Many are comfortable “thinking aloud” while they play, providing real-time verbal feedback regarding the experiences they are having. This paper proposes that observing players over live streams can elicit otherwise hidden, context-sensitive insights that are absent from a traditional user testing office or laboratory setting. In the study conducted, six players were observed broadcasting their game playing experiences over a live streaming service, while observations covered both design, the player and their environment, and interactions with online communities were recorded and analyzed to explore the variety and richness of information they reveal. This paper puts forward two theses: (1) that testing video games over live streams can provide a rich source of information to help creators improve their games, and (2) that there are contextual observations unique to studying players over a live stream that could provide valuable insights into the way people truly play their games.

Chair: Ricky Leung, SUNY-Albany

229. Coffee Break
Break
3:30 to 4:00 pm
Sheraton Boston: Foyer

230. Sorting People Out: Tracing the Political Biographies of Ethnic/Racial Categories
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon A

Over the past several decades, an interdisciplinary community of scholars has explored the performative nature of ethnic and racial categories. This work has been attentive to their political and cultural production, often through state projects, such as censuses and other technologies of population. But, the story of production is only one part. Ethnic and racial categories (and the statistics they enable) also travel and intervene. They are drawn upon and are sometimes even forgotten. Drawing inspiration from STS scholarship on the relationship between scientific objects, state classifications, and social movements (e.g., Daston 2000; Bowker and Star 1999; Epstein 2006), this panel focuses attention on the biographies of ethnic and racial categories and statistics. The language of biography is meant to capture the complex and shifting life course of ethnic and racial categories and statistics: their coming into being, their maturation and movement, their passing away, and even their resurrection. Papers will offer insight into these biographies across different national and historical contexts and from different intellectual perspectives. The result will be greater understanding of the cultural, political, and sociotechnical dynamics and infrastructures out of which ‘ethnicity’ and ‘race’ are born and live, as well as the relationship between these categories and nationally specific concerns with identity, inequality, and political representation.

Participants:
Demonstrating the Future: Ethnoracial Projection in U.S. Latino Politics Michael Rodríguez-Murillo, Northwestern University

Drawing on the concept of “demonstration,” this paper examines the circulation and uptake of ethnoracial demographic statistics about the U.S. Latino population. In particular, it tracks the ways that national Latino civil rights organizations and leaders deployed of three statistical figures about the “Latino vote” during the 2012 electoral season. The first figure projected that
12.2 million Latino voters would participate in the 2012 election. The second maintained that 50,000 Latino citizens turn 18 every month. The third figure affirmed Latino voters accounted for 10% of cast ballots, a number that came to validate the idea that Latino voters decided the election. Equipped with these statistics, these political actors sought to publicly demonstrate not only the “power” of the Latino vote in the present, but, and more importantly for them, into the future. They hoped to convince audiences that the demographic future had, in a sense, arrived. However, this demonstrative effort proved elusive for various reasons, not the least of which were the vulnerabilities of the statistics themselves and the unrealized expectations they generated. The analysis suggests, more broadly, that the authority and performativity of statistics should not be taken for granted, particularly when its categorical referent is publicly perceived as an ontologically unstable or uncertain entity.

The Rise and Fall of the Ethnic Category of “Mizrahim” and “Ashkenazim” by the Israeli Central Bureau Hagar Tzameret-Kertcher, Sapir Academic College; Sigal Nagar-Ron, Sapir Academic College

The Jewish-ethnic category in Israel is based on a binary definition according to the person’s continent of birth—Asia and Africa for Mizrahim and Europe and America for Ashkenazi. But, while the place of birth was a good indicator for ethnicity in the days of mass immigration, its definition also set an expiration date—two generations after arriving in Israel (Goldsheider, 2002). In the last two decades, the third and fourth generations of Mizrahim’s ethnic group has become untraceable by official statistics. In 2008, the Central Bureau of Statistics published a new statistical category “the peripherality index”, which identifies inequality according to socio-geographical dimensions. While Mizrahi residents constitute the vast majority of the Israeli periphery population, there are no traces to ethnicity in the new index. An analysis of the components of the peripherality-index shows that if the index would have been replaced by a simple measure of distance to Tel-Aviv city, it would give almost the same results while concealing ethnicity as an indicator of inequality. We argue that the emergence of the peripherality-index of the CBS around the time in which the statistical category of Mizrahi Jews is no longer applicable transforms the ethnic conflict into a spatial one, and can be seen as an act of depoliticizing history and the socioeconomic intra-Jewish inequalities.

Enumerating by Caste: Changing Demands by the Indian State and Social Movements Trina Vithayathil, Providence College

Since the first (almost) territory-wide census of 1872, the Indian state has collected census data on caste and religion every ten years. The collection of caste and religion data was at the heart of decennial census operations during the late 19th and early 20th centuries, as the colonial state tried to make sense of large populations (in the form of various counting and classification materials) punctuate and shape the trajectory of sense-making, and drawings) and a final digital model whose “family resemblance” is recognized by the instructor and peers. Along the way, various actors (instructor, peers, shop technicians, students’ own bodies, and various building and model-making materials) punctuate and shape the trajectory of sense-making, highlighting the extent to which translation from one form of design media to another (and back again) is much more than a question of technical competency. Or rather, as the STS truism goes, the “technical” is always already social, involving the use of judgment and habituated (learned) modes of perception and action. The paper explores these issues through the lenses of literature on craft, professional vision, embodied knowledge and multimodality.

Knowing by Approximation: Locating and Re-Locating Peripheral Sensation Lan A. Li, Columbia University

Touch proved difficult to capture at the periphery of the body. Simultaneously an action and reaction, at once a moment and a memory, physiologists inscribed lines on skin to define distinct areas sensitive to pressure and temperature, only to find their embodied experience impossible to articulate. By joining approaches in postcolonial STS and critical cartography, this paper investigates the ways in which historical actors adapted a range of scales—national, transnational, regional, and personal—rather are understood as entities created through practices of classification. Industry, counting and classification of race and ethnicity continues to play important role in the contemporary politics, especially among ethnic and racial political entrepreneurs who use enumeration to negotiate different aspects of representation. Interestingly, while the politics of ethnic identity in Israel has been turbulent in the last two decades, demands to have official records to estimate levels of ethnic inequality have not been heard. In this paper, I would like to discuss this anomaly in the way politics of ethnic identity is employed in Israel. I trace the origins of a relatively new social movement in Israel, Hakeshet. This movement was founded in 1996 and was aimed at unveiling processes that deepen ethnic inequalities within the Jewish society in Israel. Many members of the movement were social scientists, affiliated with Israeli universities, who were using quantitative research methods in their academic work. But their social campaign did not include building an infrastructure of classifications for measuring ethnic disparities. In the absence of contemporary ethnic classification, updated data on ethnic differences cannot be presented to policy makers and the public discourse remains argumentative rather than based on “hard facts”. Israel is stepping toward a “colorblind” society which would make it more difficult for the state to identify and provide resources to address ethnic inequalities.
to elaborate on cultures of epistemology and historical ontology. In particular, this paper compares two historical attempts to locate, map, and fix sensation. The first case study centers on a medical reformer named Cheng Dan’an in Shanghai who famously published a series of photographs of inscribed meridian paths on a nude model in 1931. The second case study centers on German neurologist Otfried Foerster’s production of dermatome maps also inscribed on nude human models in 1933. I argue that the inscription of a line—a graphic line that lacked form, texture, and tangible quality—captured a kind of ontology that straddled accuracy and approximation. These lines took on many different meanings when they were curved, straightened, thinned, thickened, broken, colored or shaded. A close study of body maps allows us to understand a range of medical practice and medical theory that remains multiple and contingent. How did physiologists represent sensations in the body that shift over time and differ among individuals? What were the ways in which these forms of dynamic representations serve to articulate scientific knowledge?

Knowing Remotely: Truth-Value and Truth-Politics at Saydnaya Prison Nadia Christidi, MIT

In 2016, Amnesty International partnered with Forensic Architecture to produce a virtual three-dimensional model of the notorious Saydnaya Military Prison, located 30 km north of Damascus. At Saydnaya, an estimated 10,000-20,000 detainees are currently held in near darkness and enforced silence; their sense of their surroundings is largely limited to audible sounds – dripping water, clanking bowls, guards’ bottling, and torture implements. With journalists and monitoring organizations barred from entry, the model relies on aerial satellite imagery and testimonies from former detainees to provide the first ever look into the complex. Significantly, acoustic and architectural modeling was combined in giving form to the prison. ‘Sound artefacts’ were used to trigger memories and recollections were matched with volume levels and ‘echo profiles,’ for instance, to infer dimensions and distances. This paper is concerned with how presently inaccessible spaces are or might be made ‘accessible’ to researchers, civil society organizations, and general audiences. Taking the Saydnaya prison as its case study, it asks: how have modeling technologies been leveraged to produce knowledge of Saydnaya remotely? What are the contending claims over the truthfulness of the modeling process and truth-value of the model? How are the subjectivity of testimony and the goal of an objective model reconciled? And finally, how do these truth claims map onto the politics surrounding the Syrian conflict? To tackle this, the paper draws on and seeks to contribute to scholarship on truth and evidence in STS, forensic architecture, media theory, human rights, and recent Syrian history.

Sensitivity to and Sensibility for Our Home Richard Janda, McGill University: Carolina Cruz Vinaccia, Myko Social Score Project

The proliferation of sensitive scientific instruments allows us to perceive a world unavailable to our senses. Galileo’s “eppur si muove,” affirming that the earth moves around the sun, could only have been uttered after carefully documented observations with a telescope. The sensitive instrument reversed the view that commended itself to the senses. Today a vast array of instruments is allowing us to conclude that geohistory has entered the Anthropocene, the era in which human impacts on the earth lead toward the end of the prospects for life. All of these sensitive instruments are reversing our perception of time and place. Yet we have difficulty connecting our sensibilities relating to our place -- our oikos -- to the observations that can be made about what we are doing to it. Can the sensitivity of our instruments change our sensibilities? Can we augment our sensibilities to our oikos the earth by augmenting the responsiveness of our oikos, the home? The paper will explore the implications of a Montreal-based project to build a net-zero footprint “smart-home” collecting data on impacts and behaviours and giving visual, haptic and other cues with its response to those living there. What does it mean to build a space deploying instruments that responds to us in order that our sensibilities change? Governance by data risks prioritizing that which is legible and provides a potentially distorted reading of our impacts, our home, and ourselves. Are there implicit insensitivities tied to producing nudged, habituated, semi-automatic behaviours? Might we become sensitive enough to our own in-sensitivities that we would choose to control them? Since the earth itself is now demonstrating its sensitivity to us, can we learn about its sensitivity? We will draw upon Bruno Latour’s Face à Gaia and Ulrich Beck’s Risk Society to connect these questions to the smart-home.

Chair: Lan A. Li, Columbia University


Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Beacon D

4:00 to 5:30 pm

As part of a broader public concern regarding the intersections between science and politics, approaches from the social sciences and humanities to the study of knowledge production and transfer have increased during the last decades. Cold War historians have expanded traditional political and social histories and integrated scientific knowledge as a critical element shaping the geopolitical dimension of the Cold War on a local and global perspective. Similarly, History of Science, STS, and Policy Studies have uncovered new questions about the means and mechanisms that produce, transfer, and transform expert knowledge within communities and political systems at different scales. While entering a post-Cold War global order, these approaches raise several interrogations about the intersections between science, technology, and policy in the 21st century. Examining Cold War politics and its aftermath can bring significant insights to understanding the origins and developments of current issues concerning science, technology, and policy. How can STS, History of Science, and Cold War Studies better contribute to ongoing debates on public policy in a national and transnational level? What interdisciplinary dialogues and bridges are still needed to inform citizens and decision-makers on a local and global scale? Using the Americas as a case study, this panel examines theoretical, methodological, and epistemological problems combining History and STS to the transnational study of science, technology, and policy during the 20th and 21st century.

Participants:


This paper examines the efforts of the Committee on Scholarly Communication with the PRC (CSCPRC) to build scientific cooperation with the People’s Republic of China before the reestablishment of official diplomatic relations in 1978. Based out of the National Academy of Sciences, the CSCPRC was the leading American organisation cultivatting scientific contacts with China during this period. After more than two decades of near-hermetic isolation, American scientists enthusiastically welcomed the chance to restart links with Chinese scientists and academicians in the early 1970s. The CSCPRC did so primarily by organising dozens of delegations of scientists and academics that travelled between the United States and China to renew and create professional relationships and to share expertise and research. The paper argues that burgeoning scientific cooperation was an important aspect of the Sino-American bilateral relationship in this period, both as an area of significant academic interest among the American scholarly community but also as a facet of the developing political and diplomatic relationship between the American and Chinese governments. This argument is based on the largely-underused archival records of the CSCPRC. It further benefits from a thorough use of US governmental archives, and from Chinese archival and published sources. This paper thus shows how scientific cooperation, pursued primarily for scholarly purposes, nonetheless had critical geopolitical consequences. It demonstrates that this was not lost
on scientific actors at the CSCPRC: the organisation was acutely aware of the sensitive role it played in informal Cold War diplomacy with the PRC and self-consciously sought to develop the overall Sino-American relationship through deepening scientific cooperation. Simultaneously, the CSCPRC sought to protect and further the interests of its constituency of academics— even when, as this paper will elucidate, this was in tension with the objectives that the US and Chinese governments had for these unofficial scholarly contacts.


Recent attention to the threat of global environmental change has focused on its impacts on agricultural production and food security. However, from a policy perspective, it is also critical to understand the degree to which agricultural practices, sciences, and policies have historically strained against world hunger and contributed to global-scale environmental change. The widespread use of nitrogen fertilizers during the second half of the 20th century revolutionized agricultural production and ecosystems in unprecedented ways. Scientists consider today nitrogen pollution a leading global ecological concern for the 21st century. Accordingly, a major challenge for researchers and policymakers around the world is how to balance increasing nitrogen use efficiency to meet food production demands while also enhancing environmental protection on a local and regional scale. Combining the history of science, politics, and the environment, this paper explores the history of nitrogen fertilizers, science, and policy within local and global processes of ecological change. Using Chile, Brazil, and the United States as case studies—each among the highest consumers of nitrogen fertilizer in the Americas—this project examines the politics and technologies of soil-plant nutrition and environmental change in the Americas during Cold War era and its aftermath. Political challenges for the development of democratic institutions, inter-agency coordination, and state support for scientific research and dissemination in Brazil and Chile after 1985 and 1990 respectively have dramatically limited the potential for the transference of scientific knowledge on nitrogen pollution into agricultural practices and policies. While the United States government was crucial in increasing N fertilizer consumption in Latin America and other Third World regions during the Cold War, today, it hosts some of the leading research and implementation programs for reducing fertilizer consumption in the region. Similarly, within a post-Cold War international order, a transnational network of scientists and environmental protection institutions led by Western European countries and the United States have played a major role reshaping the transference of scientific knowledge and promoting a new global framework for environmental protection. However, as we begin a new stage in the history of inter-American relations and see a new role for the United States in international environmental protection, I argue that the expansion and consolidation of this transnational framework will be fundamental for enhancing environmental science and policy in the Americas on a national and regional level. Despite the increase in interdisciplinary research in the fields of Environmental History, History of Science, Policy Studies, Agricultural History, and Science, Technology and Society (STS), scholarship on agricultural modernization and environmental change has not addressed the historical drivers of current standards of nitrogen consumption and pollution in a way that can inform science and policy. My study highlights how state formation and democratization processes in Latin America during the 20th century shaped the particular contours of global environmental issues and created challenges for environmental protection beyond these spatial and temporal limits.

Sekiko Yoshida: Scientific Computation with an Abacus in the Early U.S. Space Program Eileen Clancy, Graduate Center, City University of New York

In 1958, the first U.S. satellite, Explorer 1, was launched into orbit. Its most consequential scientific achievement was James Van Allen's cosmic ray experiment leading to the discovery of

To gain a better understanding of the Earth's geological past and access to scientific work in geology and its subfields, the CSCPRC sought to recalibrate our assumptions about the Cold War, particularly in its final two decades? Based on research in primary sources in both countries, this presentation focuses on the people involved, their conferences and publications, and challenges they faced in creating windows of scientific opportunities for collaboration at the intersection of science, technology, and politics.

Cold Stars: Astronomy, Politics and Identity in Chile during the Global Cold War Barbara Silva, Universidad Católica de Chile

During the 1960s, North American institutions (Carnegie, AURA), international holdings such as ESO (European Southern Observatory), and soviet scientists (Pulkovo) went to Chile at the same time, to look for places to set big scale astronomical telescopes. After negotiations with local politicians, academics and scientists, they all began to build enormous observatories in the northern area of Chile. The choice of Chile as the place for astronomical observation was mostly due to its geographical conditions, but also because of political and identity features of the country. The country's political stability, the relative small size of the institutions involved in the negotiations, and governmental reliability enhanced the opportunities that Chile's physical landscape provided. Despite having almost no experience in the field, national authorities saw a one-time opportunity in this arrival, and they focused in setting alliances for developing expert knowledge in physics, astronomy, astrophysics, and astronomical engineering. All this process took place in the middle of power struggles of the global cold war. Local and international scientists were in the crossroads of ideology and political connections. Science, at the same time, legitimized those political and ideological relationships. For local politicians, to take part in large scaled projects related to an avant-garde science was a key aspect for prestige and to demonstrate their commitment with progress and modernization. For Chilean scientists, it was the ultimate chance to be leading actors in astronomy. Despite the highly polarized political environment, and with no local expertise, these local actors managed to make public policies regarding astronomy, and to get involved with the western scientists as well as the soviet ones.

This paper questions the intersection between large-scale scientific and technological projects—astronomical observatories—, and power struggle, at a time of local and international political polarization. Analyzing the convergence between science and politics, this paper explores the ways in which Astronomy emerged as a major reference of Chilean identity, which carries on today.

Environments of Research: US-USSR Agreement on Environmental Protection as a Scientific Collaboration Initiative Anna Annamaria, University of Minnesota

The bilateral US-USSR Agreement on Cooperation in the Field of Environmental Protection of 1972 presents a compelling case in the history of Cold War science. A product of the Détente, the agreement began as a top-down enterprise, a politically charged show of good will between Cold War adversaries. Among the claims of the signing parties was the intent to grant each other access to scientific work in geology and its subfields, seismology, and arctic biology. The stated goal was collaboration to gain a better understanding of the Earth’s geological past and future and to protect endangered environments. At the same time, there were fears of exposing scientific controversies and inadequacies, reluctance to share security information, and looming presence of state surveillance. Once the scientific exchanges began, the projects quickly became a bottom-up initiative. An examination of two geologists, Herbert Wright and Andrzej Velichko, reveals that scientists working under the Agreement in both countries had their own agenda— sharing knowledge, learning ways of doing science on the “other side”, making connections, professional and personal, and creating a space for peaceful coexistence. What were the scientific and professional outcomes of these exchanges? What role did they tend to the Cold War? Do such scientific interactions recalibrate our assumptions about the Cold War, particularly in its final two decades? Based in research in primary sources in both countries, this presentation focuses on the people involved, their conferences and publications, and the challenges they faced in creating windows of scientific opportunities for collaboration at the intersection of science, technology, and politics.
vast radiation belts above the Earth. But the discovery was based on only a schematic understanding of the data. Van Allen's team's attempts at further data analysis were stymied by a lack of computational power and incorrect theoretical models. Satellites offered a brand-new vantage point to understand space; but also necessitated new techniques to grapple with the data they acquired. My paper explores the subnerged contributions of geophysicist Sekiko Yoshida, a Japanese scientist who arrived at the University of Iowa in late 1958. Yoshida analyzed the cosmic ray data collected by Explorer that provided the scientific underpinning for the discovery of the radiation belts. Yielding techniques typically used by Japanese cosmic ray physicists, Yoshida determined the complex motion of radiation particles in orbit around the Earth and computed cosmic ray values recorded onto miles of paper tape. She performed these calculations on a Japanese abacus. I discuss published accounts of Yoshida's life, scientific papers, and my correspondence and interviews with her former colleagues in Japan and the U.S. Yoshida's experience as an expatriate woman is an example of the intersectionality of gender, race, and national identity in the history of computing. It also demonstrates the use of an Asian computing system in creating a quintessentially "American" scientific accomplishment during the Cold War.

Chair: Barbara Silva, Universidad Catolica de Chile


Traditional (Closed) Panel

4:00 to 5:30 pm

Sheraton Boston: Floor 3 - Beacon E

Very much in the line with recent studies of science and technology, the aim of this session is to provide conceptually nuanced and empirically development, to computational vision and metaheuristics — seek to grasp here — ranging from plasma physics, astronomy, smartphone app 'algorithms' operate effectively [Collins 1990, Mackenzie 2004].

(i) the formal traces (e.g. pseudo-code, diagrams, and other notations) through which 'algorithms' manifest themselves [Rheinberger 1997, Netz 1999]; (ii) the tests (e.g. benchmarks, instances, ground-truths) used to evaluate 'algorithms' [Stengers 2006, Johnson 2009]; (iii) the concrete gestures (e.g. experiments, proofs) practitioners deploy to make 'algorithms' operate effectively [Collins 1990, Mackenzie 2004].

Participants:

Algorithms and Efficiency: How corporate software developers value time and 'energy' when building technical systems

Paula Bialski, Leuphana University Luneburg

While a slew of media theorists and popular tech journalism has been recently interested in the way in which algorithms steer the social, little is known about how algorithms are used by software developers in large corporate settings. This paper draws from ethnographic research among the 'front-end' smartphone app developers at a large (1000+ employee) mapping software company in Berlin, in order to explore the practices and politics of the human actors behind our everyday digital infrastructures. After spending four months in an organization, observing the daily work of coders and designers, this research reveals the way algorithms are used to achieve 'efficiency' when building a technical system. For a developer, an algorithm is not something strange, magical, or sociality-steering, but rather, nothing more than a way of building "efficient" systems. This paper will thus reveal how developers value "efficiency," mainly focusing on how algorithms are used to build systems that 'save' the developers' time and reduce processing memory. The developers in this field "consider any code procedure is an algorithm," which "will achieve some result at a specific cost: cost of memory and time." Developers compare and decide which algorithm to use based on amount of "time" it takes to achieve the required result. While many debates around digital media technologies focus on questions of control -- where large corporations use algorithms to control some form of sociality, this research tells another story in uncovering the micro-decisions of seemingly invisible corporate software developers who build the everyday infrastructures we use.

A Local Ecology of Scientific Software Knowledge Seth Erickson, UCLA

Ecological metaphors are used in both science studies and software studies to emphasize the networks of dependent actors, institutions, and technical systems that characterize both scientific knowledge production and software production. These metaphors are active in concepts such as 'cycles of credit' and the 'software stack', concepts that have been synthesized in recent literature on the "scientific software ecosystem" (Howison et al., 2015). This paper examines a uniquely local 'ecology' of code work in the software practices of a group of computational physicists engaged in the production of simulation software. The physicists themselves differentiate between four categories of simulation code: classroom codes, toy codes, reference/framework codes, and production codes. These categories cannot be differentiated on a purely 'algorithmic' basis because the same algorithms are active across them.

Further, attending only to those codes used in published research (i.e., those that are the most 'credible') would largely exclude all but the production codes. This paper treats the four categories as a self-supporting organizational form that constitutes the lab's code work as coherent knowledge practice. Participants' observation of laboratory meetings and interviews are used to present the categorization as a "contiguity relation" out which the physicist's efforts to produce and use simulation software are born (Akera, 2007).

Writing a Statistical Package: Tailoring an Old Algorithm to a New Processor Jérémy Grosman

Statistical packages, providing a readily usable set of computing tools, gained a tremendous importance in organizing scientific communities. This paper narrates the story one of them, namely, the Bayesian Evolutionary Analysis Sampling Trees (BEAST). For many year, when trying to infer phylogenetic trees from molecular sequences (e.g. How did the HIV viruses evolved through time ?), evolutionary biologists faced important computing limitations that placed an exhaustive estimation of the confidence of every possible phylogenetic trees out of reach. Building on previously existing packages, BEAST addresses this problem by tailoring a well established algorithm (Markov Chain Monte Carlo) to a novel specific hardware (Graphical Process Unit). This tailoring process chiefly consisted of devising a parallel version of this old serial algorithm, so that it could take advantage of computing operations newly available processors had made significantly more efficient. Minutely tracking this design process – through code repositories, interviews, experimental results, mails, scientific papers, etc. – makes clear the importance of two characteristics that, I believe, can be found across a larger set of algorithms and algorithmic practices. First, algorithms – i.e. ‘stabilized and formalized computational techniques’ – only exist through their ability to give rise to a piece of software, readily executable (e.g. a statistical package).

Second, algorithmic practices coordinate three different sorts of knowledge: 'theoretical knowledge' deduced from the algorithm's formal structure, 'experimental knowledge' induced from its concrete implementation and 'engineering knowledge' making sense of the ways it behaves on specific machines.

Spacetime and code-time: Astronomical algorithms evolving through dimensions of temporality and materiality as scientists change technological practices Bernadette Randles, UCLA

The role of the algorithm in knowledge creation in computationally-intensive science domains has been front and center for decades. Current trends towards making science more open can involve scientists sharing their algorithms in online
code repositories. In being made publically available, the inner workings are revealed, and the ‘black box’ paradigm falls away, leaving the algorithm in a new, more exposed state while functioning as an epistemic object intersecting with a technical object (Rheinberger). The algorithm in its new shared state and may be copied (forked), altered and examined by an increasing number of people. Our case study concerns an astronomy research group with a heavy reliance on algorithms to refine and process data gleaned from telescopes. The research groups’ algorithms lie on many axes of temporality: technological advances in telescopes create data that forces the algorithms to be altered, and the actual data itself is of a temporal quality of moving objects in space throughout specific time periods (Jackson, 2011). We study the relationship the researchers have with their algorithms, most likely created years ago by a long-gone team member, with only an oral trace of its origins. The researchers use entity-based language to describe their algorithms, for example, they behave in various ways, such as break, make errors, produce inexplicable results, and yield new observations. As Rheinberger observed, the algorithms function at the margin of obsolescence and disrepair, and new forms of sharing are emerging from altered processes (1997, Jackson, 2014).

Ground truths: designing referential repositories for image-processing algorithms Florian Jaton, Université de Lausanne

Based on ethnographic materials, this contribution documents the practical efforts of a group of researchers designing an image-processing algorithm for saliency detection. By following the actors of this computer science project, it shows that ‘problems’ that are often considered as the starting points of computational models are in fact provisional results of time-consuming, collective, and highly material processes that engage habits, desires, skills, and values. During these ‘problematization processes,’ referential repositories – usually called ‘ground truths’ by the computer science community – are shaped in order first to extract the relevant numerical features that will constitute the model and then evaluate its calculating performances. Working as expansive benchmarks for research communities in digital image processing, these ground truths inherit from prior problematization processes and impart subsequent ones. These empirical elements further suggest two complementary and mutually non-exclusive ways of considering algorithms: 1) An ‘axiomatic’ way that considers algorithms as sets of instructions designed to computationally solve given problems in the best possible way; 2) A ‘problematic’ way that considers algorithms as sets of instructions designed to computationally retrieve in the best possible way what has been designed as outputs during specific problematization processes. If the axiomatic consideration of algorithms puts the emphasis on the numerical transformations of inputs into outputs, the problematic consideration puts the emphasis on the definition of both inputs and outputs.

Chair: Florian Jaton, Université de Lausanne

234. Shaping the Human-Technology Frontier II

Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Beacon F

This session welcomes interdisciplinary research from an STS lens that critically evaluates and/or is actively involved in developing projects where integrated technologies (sensors, communication, computation, virtual intelligence) are embedded around, on, and in human subjects and the environments they inhabit. Thematic questions this session will explore: How are emerging integrated technologies shaping human behavior and health in relation to natural and built environments? How are they shaping social organizations in relation to natural and built environments? What are the ethical/legal implications of integrated technologies on privacy and security?

Participants: The Body Modular: What Does It Mean To Be Modular? Emily Goldsher-Diamond

Commodities derived from bodies have become more complex and subject to powerful market forces over the past decade. Examples include synthetic biology, bio-implanting, wearables for health and wellness, stem cell banking, animal-model regeneration studies and increasing public/private partnership for innovation. Unlike the simple supply and demand capitalist mode of putting sperm or bone marrow up for sale, these contemporary commodities are shaped in neoliberal ideas such as global intellectual property rights, speculative capital, entrepreneurship, privatization and naturalized globalization. A common theme of the commodities I have situated in neoliberalism as a late phase of capitalism is a distinct uniformity and individuation. Bodies are discretely dismantled into parts that can be manipulated and sold. This paper argues that within neoliberalism the commodification of bodies initially enabled by Fordist-era capitalism has now been met with the technocratic rationalism that underlies modularization (a modularity based on decentralization and differentiation) which is a feature of the neoliberal economy. A productive way to talk about this moment is to explore the concept of modularity, which has been of little interest to anthropologists outside of cognitive and evolutionary anthropology (Mawyer 2014). What does it mean to be modular? How is modularity framed in different spheres of inquiry? What can we learn about the body in neoliberalism using modularity as a framework for seeing, thinking and feeling? Exploring these questions will construct what I refer to as the body modular, the many forms and paradoxes that result from thinking with modularity and its relationship to the body. This paper takes seriously Haraway’s challenge to boundary objects, as well as studies of the social life of objects (Appadurai 1986; Tsing 2016). I argue that the body modular may be productive in the pursuit of ways to frame the interconnection of body and technology in neoliberalism without neglecting issues of history or politics.

Unbundled Relationships and Affective Commodities

Alexander A Horak; Kentaro Toyama, University of Michigan

Traditionally, people have derived much of life's satisfaction and fulfillment from holistic, multifaceted relationships such as marriage, family, friendship, and even pet ownership. Increasingly, however, a range of consumer goods and services are enabling an unbundling of relationships. Innovations such as professional cuddling, dating simulations, robotic pets, and romance-for-hire are allowing individuals to pick and choose among the psycho-emotional desires they choose to satisfy. Human gratifications are becoming discrete affective commodities which are transacted rather than nurtured. We consider the manifestations of unbundled relationships through an analysis of three affective commodities. At Japanese “host clubs,” women pay for the pseudo-romantic attentions of custom boyfriends unbundled from the obligations of marriage. Paro is a furry, robotic seal intended to provide companionship and therapy for older adults unbundled from the chores of feeding and grooming. Instagram – the popular photo-centric social media platform – offers a means of social affiliation unbundled from the uncertainty and commitment of face-to-face interaction. These examples span a continuum between anthropomorphized objects and objectified humans, and they allow us to consider unbundling in light of empowering techno-affordances and Uses and Gratification Theory at one end, and critical Marxist commodity fetishism and Lukácsian reification, at the other. Thus, unbundling has dual potential: on the one hand, by providing exactly what we want without the work of holistic relationship-building, it may erode the abiding idea of genuine social intimacy; on the other hand, unbundling affords a new opportunity to customize growth-yielding experiences in ways that could lead to even more fulfilling lives.

Total Recall: Standardizing Memory in Facebook Applications

Hagar Bohbot, University of Haifa, Israel; Rivka Ribak, University of Haifa
"Memories include things like your posts and others' posts you're tagged in, major life events and when you became friends with someone on Facebook". (Facebook's "On this day" help center, February 2016) It seems that while memory studies' scholars are debating the implications and meanings of digital memory artifacts (Garde-Hansen, 2009; Mayer-Schönberger, 2011; Schwarz, 2013; van Dijck, 2007), Facebook has it all figured out: the official Help Center for Facebook's memory applications (including "On this day," "Year in review" and "Friends day video"), describes a clear, positive manner what constitutes a memory. Yet Facebook's definition for memory has not always been as clear. In fact, as late as June 2015, the same official help center page did not offer any definition at all. This paper explores the standardization process of digital memory artifacts generated by Facebook's various applications. By taking a close look at Facebook's official Help Center, Facebook's memory applications and the media coverage concerning them, we hope to gain insight into the cultural logic of algorithmically-generated personal memories. The framework for this discussion considers the specific characteristics of infrastructures, platforms and algorithms as they are shaping the process of standardization. In the paper, we discuss three strategies used by Facebook in the standardization process of memory artifacts: fostering users' engagement with their past, the use of post-human rhetoric and a blurred self-perception of the social network. Cited references: Garde-Hansen, J. (2009). MyMemories? Personal digital archive fever and Facebook. In J. Garde-Hansen, A. Hoskins & A. Reading (eds.) Save as... Digital memories. (pp.135-150). Basingstoke: Palgrave. Mayer-Schönberger, V. (2011). Delete: The virtue of forgetting in the digital age. Princeton University Press. Schwarz, G. (2013). The past next door: Neighbourly relations with digital memory-artifacts. Memory Studies, 7(1), 7-21. Van Dijck, J. (2007). Mediated memories in the digital age. Stanford University Press.

Chair: Richard B Duque, SUNY Polytechnic Institute
Discussant: Richard B Duque, SUNY Polytechnic Institute

235. Studying Science Communication II
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon G

The last decades have, in a number of countries, seen an increase in science communication and public engagement activities. In many places a well defined 'deficit to dialogue' narrative tells of the move from 'public understanding of science' (PUS) models of communication (dominant in the 1980s and '90s) to more dialogic approaches, based on twoway communication between science and its publics. STS scholarship has been instrumental in these developments. Theoretical and analytical attention, as well as experiments with practice, have, however, tended to focus on policy oriented or governmentally sponsored engagement, and especially on overt efforts to 'democratise' science. This panel focuses on forms of science communication that do not claim to formally influence policy or scientific research, and which may at first glance feature one-way communication. This includes, for instance, science in museums, science fairs and festivals, popular science media, science blogging, sciar activities, and university and lab open days. We invite critical STS analysis and discussion of these activities. This might include, for example, reflections on the role science communication may play in the democratisation of science, analyses of the constitution of publics and knowledges within particular science communication activities, or accounts of experimental practice. The panel will thus use the methodologies of critical STS to reflect upon the problems, potential and practice of contemporary science communication.

Participants:
The Evolution of Public-Scientists: How Indian Science Museums Are Creating Grassroots Innovators anwesha chakraborty, University of Bologna

In this paper, my aim is to define and critically engage with the concept of "grassroots innovation", a key component of the latest Science, Technology and Innovation Policy (2013) of the Indian government, as an alternative to deficit and dialogue models in PESF (as it breaks the barrier between science and public.) The paper will report the findings of a short ethnographic study carried out at the "Innovation Hub", a recently inaugurated facility at the first public science museum in India, the Birla Industrial and Technological Museum (BITM), Kolkata. The space, as explained by its curator, is designed to encourage students from schools and universities to participate in the national vision of promotion of scientific temper and to visualize themselves as innovators to address societal challenges. The site was selected for the study because it was created as a part of the larger national plan drawn by the National Innovation Council, a think-tank formed to develop strategies on inclusive innovation and development. (NItC Report, 2013). Findings from the ethnographic research have been used in the analysis in conjunction with definitions and examples of grassroots innovation and innovators provided in policy documents and annual activity reports of the prominent organisations working on this issue: National Innovation Council and National Innovation Foundation. These additional sources will help us understand if there is a continuity between the rhetoric of grassroots innovation and the realisation of the idea in an urban setting like the Innovation Hub which encourages informal engagement with science and technology.

Engaged Modest Witnesses: Building Bridges Between Natural History Research Museums and Society Per Hetland, Department of Education, University of Oslo

Academia considers education, scientific research, and the public communication of science and technology as its three most important assignments. This paper explores how communication to the public contributes to building bridges between natural history research museums and society. It also looks at the tensions between being a modest (or less modest) witness and facilitating public engagement with science. Research museums have public communication of science and technology as a core activity, and the scientists that communicate their research to the public act as “modest witnesses” (Haraway 1997, Hetland 2016a, b). Consequently, the role of the modest witness seems to be a crucial part of the professionalization of research as an occupation (Leach 2009). The public communication of science and technology will be studied with the overall aim of understanding how scientists build bridges between science and society, engaging the public in understanding both the process and the results of scientific research. As part of the project Cultural Heritage Mediascapes: Innovation in Knowledge and Mediation Practices (Norwegian Research Council 2015-2019) twenty scientists from the natural history institutions of two research museums will be interviewed about their dialogues with a wide audience. Interview questions include how amateurs or volunteers (including citizen science projects) contribute to scientific activities. Even if researchers aim for popular engagement, they adhere to scientific norms and discourse firmly grounded in the material practices, literary style and social technologies of Boyle’s “modest witness” (Reed 2001), which include those acting as less modest witnesses when engaging in expert-public interaction. Haraway, D. 1997. Modest_Witnesses@Second_Millenium.FemaleMan©_Meets_Onc oMouse? New York: Routledge. Hetland, P. 2016a. “Public Communication of Technological Change: Modest and Less Modest Witnesses.” Nordic Journal of Science and Technology Studies 4 (2):5-16. Hetland, P. 2016b. “Rethinking the Social Contract between Science and Society: Steps to an Ecology of Science Communication.” Submitted dr.philos.-thesis, Department of Education, University of Oslo. Leach, J. 2009. "Scientific Witness, Testimony, and Mediation." In Media Witnessing: Testimony in the Age of Mass Communication, edited by P. Frosh and A. Pinchevski. London: palgrave macmillan. Reed, R. 2001. ""(Un)-professional discourse? Journalists’ and scientists’ stories about science in the media." Journalism 2 (3):279-298.

Dietary Advice and the Urge for Certainty Andreas Gunnarsson, Department of Sociology and Work Science,
Dietary guidelines have been an issue for governments since at least the Second World War. Seen as a crucial tool for promoting public health they have been haunted by insecurities, doubts and conflict ever since. This paper takes the work of the Swedish National Food Agency as an example of how dietary guidelines are popularised and communicated. Focusing on the construction of credibility and certainty the paper maps out how dietary issues are presented as stable and knowable to the general population amidst competing advice from alternative diets, uncertain scientific data and contradictory experiences of subjective health.

Mobilising STS theories on popularisation of science, the paper argues that dietary guidelines are both based on, and constructing, an image of dietary knowledge as a certain and straightforward science. By analysing dietary advice and the popularisation efforts made by the National Food Administration, this paper shows how dietary guidelines, and public discussions about diet and health, are characterised by an urge for certainty. This urge means that both the proponents and opponents of official guidelines share a common will for unequivocal knowledge about diet and health – and base their communications and rhetoric on the assumption that such knowledge exists. While this might well lead to clearer and more easily understandable advice, it glosses over contradictions and uncertainties, opening up all advice to criticism about oversimplification and even corruption that are difficult to handle whilst clinging to the urge for certainty.

Disorganized Infant Attachment, Film Technologies and the Making of a ‘Buzzing’ Boundary Object Robbie Duschinsky, Cambridge University

Based upon the results of ethnography, interviews and archival research over three years, this paper explores the role of film as an infrastructure and mediating technology of perception in the assessment of infant attachment and parenting, focusing on the influential disorganized/disoriented attachment classification. The paper will trace the emergence of this classification to the recruitment of film technologies within developmental research in the 1970s. The disorganized/disoriented classification has subsequently served as a boundary object between different constituencies with a stake in images of harm and infant mental health, including clinicians, families and policy-makers. However, the paper will also document that the classification of disorganized/disoriented attachment has become reified by the way that film media have been interpreted and communicated. This reification has contributed to live disagreements between researchers and clinicians about how to sense and classify infant maltreatment and distress. Recent work by the authors in collaboration with developmental scientists and clinicians to clarify and to address these controversies will be reported. Drawing ideas from feminist STS and film theory, the paper will then highlight key implications of the particular case of disorganized/disoriented attachment for wider discussions, including proposing a theory of apprehensions of harm as - like a buzzword - a notable kind of “buzzing” boundary object within science communication.

Chair: 
Maja Horst, University of Copenhagen

236. Citizen Science Politics and Practices II

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon II

The term “citizen science” has a plurality of meanings: from various forms of public participation in science, crowdsourced science, community actions for regulating risks, and grassroots hacking. The roles of citizens in these initiatives vary: they may act as scientists’ sensors, trained to collect and analyze data; they may challenge regulatory standards, collect and analyze data — sometimes with the tools they design — in order to set their own agenda. The relationships between lay participants and professional in these initiatives range from tamed/collaborative to radical/competitive. The intended outputs of these projects also differ — from scientific publications, monitoring systems, new devices, identifying and removing hazards, to policy changes. Despite the ambiguity, the term “citizen science” has gained popularity in public policies and grant awarding opportunities, although often only for those on the “tamed” side of the spectrum. Exactly what citizen science can bring or is expected to deliver cannot be answered without resolving such ambiguity. This panel invites STS scholars, historians of science and techno-legal researchers to propose case studies and theoretical contributions exploring the boundaries of citizen science, as well as its techno-scientific and public policy impact for community-building, civic participation, the development of commons, and the production of knowledge.

Participants:

Modes of Engagement in Arctic Science: Rights Holders, Stakeholders, and the Citizen Science Debate Noor Johnson, University of Colorado Boulder; Ruth Duerr, Ronin Institute for Independent Scholarship; Heidi McCann, University of Colorado Boulder; Peter Pulsifer, University of Colorado Boulder; Colleen Strawhacker, University of Colorado Boulder

Over the past decade, there has been a significant shift in the dynamics of scientific knowledge production between visiting scientists and Indigenous Arctic residents. While previously scientists developed research agendas with little thought to community engagement, Arctic residents increasingly expect scientific knowledge to address their interests and priorities and to be part of knowledge production practices. Institutional reforms such as land claim agreements and the establishment of co-management boards, which have unsettled conventional scientific notions of expertise to make space for Indigenous knowledge as co-equal to science, are among the broader political changes facilitating these shifts. In this paper, we consider various modes of engagement in Arctic science, reflecting on contested terminologies to describe civic engagement in knowledge production. Citizen science, for example, has been critiqued for assuming that science is inherently a public good, and that citizens can afford to volunteer their time to support a scientist-driven agenda (Johnson et al 2015). Such approaches often view citizens as “stakeholders” in the production of knowledge. In contrast, Arctic Indigenous residents insist on engaging in knowledge production as rights holders. Alternative terms include community-based and community-led science and monitoring. Drawing on STS approaches to studying the construction of expertise, we reflect on the evolution of community involvement in Arctic science. We draw on examples from our work with a variety of Arctic Indigenous community groups and researchers to develop infrastructures for the stewardship of Indigenous knowledge and community-based observing and monitoring.

The Politics of Expertise in Environmental Research: Considering the Climber Courtney Evelyn Cecale, University of California, Los Angeles (UCLA)

As glaciers disappear at alarming rates in the Peruvian Andes, science researchers from all over the globe are teaming up with local NGOs, municipal governments, and state agencies in order to develop secure climate change adaptation strategies. Yet essential to these scientific processes is the work and expertise of local mountain climbing guides, who risk their bodies and lives to collect certain forms of necessary data. Through routine visits to the same glaciers, these climbers, from typically campesino and indigenous backgrounds, have constructed the largest and most thorough collection of black carbon data anywhere in the world. Based on 18 months of qualitative fieldwork, this proposed talk provides an ethnographic glimpse into the cultural politics and bio-politics of environmental expertise. How is it negotiated, determined, and valued — and to what effects? And how does the expertise of climbers (and local knowledge producers) affect the process of environmental planning?

Raising Ethics: Parents of Critically Ill Children Taking the Lead in Scientific Research Amy Dockser Marcus, Harvard Medical School; Isaac Kohane, Harvard Medical School;
Effy Vayena, University of Zurich

Citizen science, the phenomenon of lay participation in research, is increasingly popular but key questions remain about the ethical standards that should apply. In this paper, we focus on a subset of citizen scientists, the parents of ill children who lead research and scientific collaborations. Such groups have been successful in attracting resources, government attention, and research to diseases such as NLG-L deficiency, Niemann-Pick Type C disease, and Sanfilippo syndrome. (Amy Dockser Marcus, Wall Street Journal, November, 2013; www.wsj.com/trials) However, ethical tensions often arise when parents and scientists try to work together, particularly due to the conflict between the urgent demand for treatment on the part of parents and an often greater reluctance by scientists to proceed without first collecting substantial evidence of safety. We argue that the current framework for research ethics is constructed for scientific inquiry where the roles and responsibilities of all participants are more clearly defined and does not sufficiently address the key ethical dilemmas of parents and scientists who want to produce scientific knowledge as partners. (Vayena, et al. "Research by participants: a new social contract for a new kind of research?", Journal of Medical Ethics, April, 2015, Mandl K, Kohane I, "Time for a Patient-Driven Health Information Economy?", New England Journal of Medicine, January 2016) We underline the need to study and better understand potential differences in their moral concerns, which should inform an ethical framework that accounts for novel perspectives and offers a way to resolve moral tensions when they arise.

Community Wireless Networks as Policy Makery/Makerspace

This communication explores the case of Community Wireless Networks as a case study of participation to public policy through the production of techno-legal knowledge. Community wireless networks (CNs) are local, commons-based alternatives to commercial internet service providers. They are producing and informing state-of-the-art knowledge in the field of computer science and engineering, economy, law, and political science. Members of CNs, through their practice and collaborations with peer users, hackers, digital rights activists, researchers and local authorities, develop and improve technologies, policies and practices. They devise new types of licensing, governance and socio-economic agreements, and as such contribute to research and scholarship on the commons. Based on sophisticated techno-legal analysis of liability, privacy or telecommunications legal framework, they may engage in advocacy to draft laws more protective of digital rights and privacy, more supportive of open hardware, or spectrum management. We claim that the communities are ‘making’ science and policy through these practices, rather than ‘only’ technology, by analysing problems and proposing creative solutions to improve access and sustainability. The method associates an ethnography of CNs in Greece, France, Germany and Spain with desk research on the definitions of citizen science, and theories on the relation between science and policy, in the view of informing both fields of the findings of this research, which is part of the H2020 netCommons research project supported by the European Commission.

An (in)sensible Machine: The Unpaid Care Worker in the Chthulucene

This paper aims to showcase the theoretical and political value of putting feminist STS in conversation with feminist theory toward novel interrogations of persisting feminist concerns. Using original data from interviews and ethnographic participant observation in South Africa, this paper proposes new ways of interrogating the “problem of care” through feminist technoscience analytics. Voluntary HIV/AIDS community care workers in South Africa were the only responders to the epidemic during the country’s era of “AIDS denialism.” In previous research, I argued that the universal and inevitable human need for care (Fineman) – increasing in an era of precarity and evinced by the present example – is rendered insensible due to economically, socially, physically, and psychologically deprivational consequences. The highly gendered nature and consequences of unpaid care work in a country with one of the highest rates of gender inequality and the largest population of people living with AIDS in the world are self-evident political concerns (Jewkes et al.). This instantiation of care adds urgency to answering the question of why the “problem of care” persists despite thoughtful, careful and extensive feminist theorizations (Tronto). This paper suggests that the invisibilities of care provide a novel theoretical aperture to expand feminist theory through feminist technoscience towards a more nuanced understanding of the human-technoscience coproduction of neoliberal societies (Subramaniam et al.) in their raced and sexed coinhabitancies, especially in developing countries where eugenic scripts and biopolitical governance operate under the guise of innovation in health sciences. Experience as a public health activist in South Africa informs my methodology: (a) care is a central logic undergirding biopolitics (Stevenson) and requires a capacious analytic which can hold questions about the entanglements of biotechnological innovation, public health policy formulation, post-colonialism, transitional democracy, and the imperatives of the neoliberal political economy simultaneously; (b) feminist theories of care may have impeded such insights by focusing on essentialist concerns with gender oppression (care work is women’s work). I adopt Braidotti’s logic of transversality to expand existing theories of care through previously unexplored amalgamations and collaborations – including an attempt to revivify care as ‘technology’ (Latour, Balsamo) – toward radically questioning agnotologic tendencies and generating innovative ethico-onto-epistemologies (Barad) of...
care which are simultaneously pragmatic and politically salient for “building more liveable lives” (Haraway, 2016). This paper concludes by suggesting the future benefits of feminist theories of care (including new feminist materialisms) as enhanced by feminist STS analytics in the emerging field of care robotics.

Envisioning the Body at Work: Gender and Embodiment in British Colonial Bermuda

Eram Alam, University of Pennsylvania

Jenna Tonn, Boston College

Theoretical questions about evolution and experimental investigations into the sensory mechanisms of living organisms have long sent biologists outdoors to observe and collect specimens in their natural environments. This paper explores the history of scientific interests in British colonial Bermuda during the early twentieth century. In particular, it examines how ideas about gender, embodiment, and the cultural imagination of “the tropics” shaped the politics and practice of biological research. Scientific questions about the Bermudian environment - defined by its coral reef geology and subtropical flora and fauna - carried over into widespread social and cultural debates about whose bodies had the right constitution to withstand the island’s climate. The founding of the Bermuda Biological Station in 1903 drew on and contributed to these shifting ideas about biology and the body. As a joint venture between scientists, natural history enthusiasts, and tourism boosters, the Bermuda Biological Station struggled to balance its scientific mission with its association with tourism in the Greater Caribbean. Occupying a series of hotels and military garrison, the Bermuda Biological Station hosted a surprisingly diverse group of practitioners. Most significantly, it became an important destination for women botanists and zoologists who were excluded from more established marine stations on the American Atlantic and who took advantage of the more fluidly gendered scientific culture in Bermuda to pursue advanced training. I argue that questions related to gender, race, colonialism, and the scientific body at work defined early twentieth century biological investigations in Bermuda.

Creating Commensurability: Standardizing “Foreign” Medical Labor

Eram Alam, University of Pennsylvania

In 1961, the doctor shortage in the United States was considered acute. And by 1967, the country was in a state of near crisis. Rural and inner city communities bore the consequences of inadequate manpower most severely and policymakers were tasked with ameliorating these disastrous conditions. Congress turned to immigration as an expedient strategy to supplement the national labor force. Under the Hart-Celler Immigration and Nationality Act of 1965, over 75,000 Foreign Medical Graduates (FMGs) originating largely from postcolonial Asian nations arrived to fill vacancies in hospitals across the country. In exchange for providing medical service, foreign physicians received permanent resident status and US citizenship. Although the caring foreigner was invited into the nation, crossing over the threshold required negotiation. Documents were a central mechanism to manage this transition. The foreign physician was required to produce an archive of their expertise, a compilation of documents that touched on their medical knowledge and simultaneously formed the basis for their entry. In this talk, I analyze the stepwise production of this archive, the process by which an undocumented foreigner lost their postcolonial obscurity to become a documented medical expert. Bureaucratic management was integral to FMG formation as it converted diverse medical practitioners into something verifiable and compatible with US standards and metrics. For FMGs, the effects of this bureaucratic translation extended beyond the margins of documents. It structured their sense of self, memory, and belonging in the United States and became an important practice for personal identity formation and professional possibility.

Job Prospects and Flow of Young Researchers

Alejandro Canales, UNAM-ILSE; Mery Hamui, Universidad Autonoma Metropolitana

In this paper we explore and analyze the job prospects of young people in the early stage of their careers (Early Career Research). To obtain an academic position in Mexican Higher Education Institutions is difficult, positions are highly competed and opportunities are scarce compared to the volume of applicants; a similar situation occurs when obtaining stable jobs in most academic markets. It is not easy for early career researchers to find a job in the industry, because national investment for scientific activity is concentrated to a greater extent in public research centers and universities. In these circumstances, some policy programs have been implemented trying to incorporate highly qualified young people. However, little has been explored about the effects of the working contexts in the expectations of high level educated human resources, in their socialization processes and in ways of employment. In this work, using information derived from interviews of young doctors recently graduated in three high rated quality programs, we inquired about the reasons they had in studying in those PhD programs, about the orientation to work of the training they received as well as the characteristics of their first job. Some of the findings point out that the preferences of young people are in an academic career, in research positions at Research Centers and at Higher Education Institutions, but also make visible the difficulties to enter the labor market and the willingness to adapt to new circumstances.

Bored Tech Workers Being Casually Racist

Sareeta Amrute, University of Washington

This paper analyses the position of short-term coders from India who work in the software regimes of the United States and elsewhere. Building on my book, Encoding Race Encoding Class: Indian IT Workers in Berlin, I argue that race and racialization are part of the everyday dynamics of life and work in software firms. Using ethnographic interviews with tech workers, I demonstrate that such short-term migrant programmers are granted precarious recognition in the countries in which they work that my be recinded at any time. I analyze race as a technology that both produces knowledge about potential markets and disciplines workers within office hierarchies. By putting race at the center of the analysis of software worlds, I show that these worlds, far from being immaterial and informational, are materialized in different ways for different subjects.

Chair:

Sareeta Amrute, University of Washington

238. Techno-Optimism: Considering Affective Attachments to the Promises of Technoscience

Traditional (Closed) Panel

4:00 to 5:30 pm

Sheraton Boston: Floor 3 - Clarendon

“Techno-optimism” is a rallying point for technology activists and advocates who believe that science and technology can be used to make the world a better place. It refers to a positive affective orientation toward technoscience, often characterized by hope and expectation. Science and technology studies scholarship has offered vital critiques of techno-optimism: expectations that science and technology will have positive social, cultural, or economic effects can lead to depoliticizing technological fixes or justify social injustice by fixating on techno-utopian visions of the future. In addition to critiquing techno-optimism, we aim to understand the reasons why promises associated with science and technology resonate so strongly in the contemporary world. This panel therefore pursuing analytical understandings of positive affective orientations toward science and technology. What sorts of personal and political projects depend upon the symbolism of technoscience? From spectacular technologies in Ghanaian herbal medicine clinics to the pedagogical use of Minecraft in the San Francisco Bay Area, from American biohacking to Ghanaian electronic waste recycling, we inquire into the nature of affective attachments to the promises of technoscience.

Participants:

Minecraft and the Unmarked Gamer: Techno-Optimism in Pathways to Programming

Morgan G. Ames, CSTMS, UC Berkeley

Since its 2009 release, Minecraft – an open-world videogame...
Playing With Life: How Science Fiction Helped Shape the Alternative Medicine Diagnostic Equipment and the Promises of Techno-Science in Ghana’s Herbal Medicine Clinics

This paper explores multiple visions of the good life in Ghana, as expressed through engagements with alternative medicine diagnostic devices. In the last two decades, Ghana has seen an expansion of herbal medicine clinics that prominently advertise their practice of “scientific herbal medicine.” These businesses are popular with patients seeking herbal medicines supported by recent scientific advances, and they primarily serve patients dealing with chronic conditions or who otherwise feel left out by Ghana’s public health system. These clinics have risen in response to a rollback of state-supported public health services and a growing emphasis on market-mediated access to medicines. They therefore represent emergent, popular understandings of the duties of private medical industries and the benefits of scientific medicine. Many of these clinics used and prominently displayed expensive pieces of alternative medicine diagnostic technology. In this paper, I focus on the engagement of licensed professional herbalists and their patients to explore multiple understandings of what it means to have access to modern technoscience. I argue that both the users and patients of these technologies see the herbal medicine sector as providing the material and symbolic benefits of middle class life, including recognition as participants in the modern world, at the same time that they experienced this as exploitation. This reveals enduring forms of attachment to technologies as symbols for technoscience, modernity, and progress even when they fail to deliver on their promises.

Playing With Life: How Science Fiction Helped Shape the Moral Economy of Synthetic Biology

Many commentators have noted that synthetic biology, a discipline that in one formulation aims to make biology “easy to engineer” – as well as associated do-it-yourself biology or biohacking initiatives – frequently adopts a markedly playful attitude. Bernadette Bensaude-Vincent writes that synthetic biology’s moral economy is not “the sober self-dedication of disinterested scientists” but “a playful activity of creating toys.” While STS scholarship has documented the influence of the hacker ethos on the field, and its role in importing notions of play, this paper demonstrates science fiction’s contribution to developing the notion of biohacking as an endeavor with particular affective characteristics. Drawing on literary analysis as well as fieldwork and interviews with synthetic biologists and biohackers, I argue that late-twentieth century cyberpunk novels developed a narrative and aesthetic framework around biotechnology that contributed to the development of synthetic biology’s moral economy, framing biohacking as a creative and even artistic enterprise. Interviews with synthetic biologists confirm that founding members of the field were reading and discussing cyberpunk fiction, sometimes with the participation of the authors themselves, between 1998 and 2001 when the genesis of the field was underway. By attending to synthetic biology’s aesthetic and affective frameworks and their origins in science fiction, this paper brings to light implicit messages that are sometimes in tension with the explicit framings that synthetic biologists give of their field, particularly concerning narratives of control and attitudes towards the natural world.

Chair: Damien Droney, Stanford University
Discussant: Lilly Irani, University of California, San Diego

239. 2017 Bernal Lecture: Hebe Vessuri
Author Meets Critic
4:00 to 5:30 pm
Sheraton Boston: Floor 2 - Constitution

Of Geographies, Imagined Kinship, Denials, and Utopias: Science and Scientists in the “Rest of the Rest of the World”

The 2017 Bernal Prize has been awarded to Hebe Vessuri, an Argentinian sociologist whose contributions to the field of Science and Technology Studies have been expansive and ongoing for decades. Vessuri is author of 31 books, and hundreds of articles, book chapters and government reports, written in English, Spanish, French, and Portuguese. A pioneer in the anthropologyp of science with fieldwork experience throughout Latin America, Vessuri has demonstrated how ethnographic studies of the sciences can inform both social theory and policy. Vessuri has also made important institutional contributions, throughout Latin America and at the international level. Vessuri’s lecture will be introduced by Kim Fortun (Chair of the 2017 Bernal prize committee), and by three colleagues who have worked closely with Vessuri.

Chair: Kim Fortun, University of California Irvine
Panel Members:
Leandro Rodriguez Medina, Universidad de las Americas Puebla
Sarita Albagli, IBICT Brazilian Institute for Information in Science and Technology
Rigas Arvanitis, Ird
Hebe Vessuri, Research Center of Environmental Geography (CIGA) UNAM

240. Plasticity, Postgenomics, and the Politics of Possibility III

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Dalton

The past decade has seen a growing appreciation in the life sciences for the complex relationships between biological and social life. Novel concepts in postgenomic biology and claims of an “environmental turn” in the life sciences are viewed by some scholars as challenging genetic determinism and its emphasis on the fixity of traits and behaviours. Others have raised concerns about the social and political dimensions of these developments. In line with the conference theme of (in)sensibilities, this open panel calls attention to the concept of plasticity, which has emerged as central in a number of burgeoning disciplines including social neuroscience, environmental epigenetics, nutrigenomics, microbiomics, and developmental origins of health and disease. The panel will bring together papers that critically examine plasticity from various disciplinary, empirical, and theoretical perspectives. We invite papers that look at the complexity and ambiguity of plasticity, its meanings and potential consequences for the governance of life processes and populations, its temporal and gender politics, its impacts on sociotechnical imaginaries across contexts, and its implications for social and environmental justice in the Global North and South. Far from celebrating plasticity, we invite papers to critically reflect on its relationship to contemporary shifts in the life and social sciences, its historical legacy, and the promises and hype
surrounding the concept. The panel seeks to broaden our critical imagination and to support scholarship that thoughtfully engages claims that a more profound biocultural era is upon us, in which the innate and the environmental, historical and contemporary, are increasingly entangled.

Participants:
Broken Brains? Plasticity and Hope in Developmental Neuroscience Kasia Tolwinski
Over the last decade, neuroscience research on the role of environment or social life on brain development has proliferated. One of the major claims emerging is that poverty and trauma have deleterious effects on childhood development. The scientists and policymakers I study ultimately believe that their work is aligned with a social determinants of health model, and that it provides powerful evidence about the negative effects of adversity. In my interviews with many scientists in this subfield, they express an explicit interest in politics and social justice. They want their findings to be responsibly translated into education and health policy to help vulnerable populations. It caught them off guard, then, that their work emphasizing social life and environment was criticized for a kind of biological determinism. Critics have called them eugenicists, phrenologists, and racists; they argue that linking the social and biological in such ways is dangerous, and sounds alarmingly like historical attempts to classify human intelligence, personality, and capacity along biological lines and tie them, innately, to biological structures. They suggest that these neuroscientists position vulnerable children as irreparably broken. How did this criticism emerge, and why? How do they respond? In this paper, I discuss this controversy in detail. I detail how neuroscientists who study how experience is “biologically embedded” manage criticism of their work. Scientists respond to this critique by invoking discourses of plasticity and hope. My interviewees want to defend both their character and scientific credibility.

Depressed Life: Microbiota-Gut-Brain Axis and New Plastic Epistemologies of the Human Ariel J Rawson, The Ohio State University
There is new excitement about ways to understand mental phenomena as material and yet irreducible to the human brain or genome. Neurogastroenterology and other burgeoning fields have found new frontiers through identifying not only effects of antimicrobial, nutritional, and birth canal environments in microbiotic signatures of population types or “enterotypes”, but also opportunities for modulating mind through the balance of bacterial life in the body. This paper asks, in the moment the microbiota-gut-brain axis both mobilizes and reconfigures enactments of Self, Other, and World, what happens to the species notion of the human? Here, I situate the reconfigurations of Self, Other, and World in the context of transdisciplinary shifts towards plasticity, particularly of the genome and brain. To answer this question, the paper will provide an interpretive analysis of current research on the entanglement between traits or states of depression, the hostile/hospitable environment of the human gut, and its indigenous and foreign microorganisms. I pull from and contribute to feminist STS work on new materialisms and posthumanism, as well as decolonial STS work on epistemology and the gendered and racialized divisions that animate both ruptures and continuities of the human. In turn, I present the contemporary ‘environmental turn’ in the life sciences in terms of the contradictory promises in the plasticity of Self and World, which on one hand disrupts a modality of being human in terms of species difference and identity, while on the other hand reinscribes obfuscated subhuman and suprahuman divisions of the human into life itself.

The EDC-MixRisk Project: Mixing the Real-Lives of EDC Risk and its Localized Implementation Nadav Even Chorev, European Institute of Oncology; Giuseppe Testa, European School of Molecular Medicine
The question of engaging with “Real-life” problems has long preoccupied science and technoscience with the so-called post-truth discourse, this issue is regaining urgency. Here we examine the Horizon2020 EDC-MixRisk project that deals with the health-risks related to the ubiquitous exposure to Endocrine Disrupting Compounds (EDCs), highlighting the epistemic opportunities and challenges of engaging with real-life problems in large policy-oriented biomedical research networks. The project utilizes data from the epidemiological scale, associating exposure to mixtures of EDCs with adverse health outcomes. These are then validated on the molecular scale through experiments on animal and cell models to yield mechanistic evidence causally tying exposure to mixtures of EDCs with biological effects. These evidence will be subsequently harnessed to support policy change efforts, meant to set thresholds for the use of EDC mixtures in daily consumption products on the EU regulatory scale. The key innovation of the project lies in seeking causal explanation for the consequences of real-life exposure scenarios that entail complex mixtures of EDCs rather than single substances. Analyzing findings from the first phase of the project, we show how the project ‘mixes’ real-life problems across epistemological levels, starting with the localized “real life” epidemiological demonstration of the causal effects of EDC mixtures and pursuing diverse modeling practices to make ‘real-life’ exposure experimentally tractable. Yet it also goes beyond temporal and spatial contingencies, mobilizing different streams of scientific evidence for the benefit of a self-proclaimed public-good, embodying a universal aspiration to reach future generations and environmental contexts.

The Plasticity of Epigenetics. An Ethnography of the Enactment of Epigenetic Perspectives in a Psychiatric Research Laboratory Georgia Samaras, MCTS TU München
Epigenetics is a knowledge culture in the life sciences that is preoccupied with the question how the human body is embedded in social and material environments, stressing gene-environment interaction: The human body and mind are increasingly perceived as plastic and malleable. However, epigenetics itself emerges as a plastic term and concept. My talk will give first empirical insights into everyday practices of a psychiatric research facility. In this specific institute, the epigenetics of mental illness, with a focus on stress-related disorders – is researched from different scientific perspectives using a variety of epistemic approaches and technical arrangements (e.g. basic research, clinical research; mouse model, human gene material). This scientific manifoldness between basic research of the molecular pathways of mental illness and clinical treatment of patients suffering from psychological disorders makes this institute a unique fieldsite to observe the multiplicity of epigenetics. By understanding epigenetics also as a metaphor (cf. Marcus 1995), I will show how it is discursively and materially produced differently at diverse sites within this research institute – following Mol: how epigenetics is enacted (Mol 2002). By participant observation, ethnographic interviewing and discourse analysis, I would like to take a look at how these different understandings and notions interact to produce epigenetic accounts of mental illness.

Plastic Bodies and Rigid Societies: Epigenetics, Animal Models and Social Hierarchies Paul Martin, Department of Sociological Studies, University of Sheffield; Andrew Bartlett, University of Sheffield
Scientific narratives that emphasise the evolutionary conservation of structures, processes and traits have traditionally dominated over ideas about the plasticity of biology. The apparent rigidity of biology has also been contrasted with the perceived fluidity of culture and society. However, the emerging field of epigenetics has started to rework these narratives by placing greater emphasis on biological plasticity. This paper presents findings from a Leverhulme Trust funded project that examines scientific and policy discourses about the role of epigenetics in mediating how socio-economic inequalities get
‘under the skin’. In particular, these focus on the role of the stress response as a result of adverse social conditions in the aetiology of common diseases. Central to this is the use of animal models which attempt to mimic the stress caused by living in a social hierarchy and identify evolutionary conserved pathways. Drawing on ethnographic data, the paper will examine the construction of models of social dominance using the zebrafish. These reproduce and naturalise ideas about the biological basis of social hierarchy. However, experimental manipulation of these models has started to produce new discourses suggesting that such apparent social order is both negotiated and fluid, and how individual animals can change their social position. This new knowledge is being mobilised in support of biopolitical projects that seek to improve human health through epigenetically informed individual interventions. The paper will critically reflect on emerging liberal discourses of personal freedom based on biological plasticity that simultaneously reinforce ideas about the rigid nature of human societies.

Chair: Becky K Mansfield, Ohio State University

241. The Promises and Pitfalls of Educational Technologies and Techniques
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Exeter

Participants:
"Shaping the Future": Techniques of Future-telling in the Education Technology Field hemy ramiel, Bar Ilan University

Present educational public discourse necessarily looks toward "the future," but this future is always entangled with the here-and-now and with an ongoing dissatisfaction with educational systems, which are viewed as obsolete. In the field of education technology the unknown future becomes a tool of legitimization for advancing neo-liberal reforms and the use of digital technologies in schools. In this paper I aim to discuss some techniques of future telling and their meanings in the educational technology domain, based on my research at Mindcet, an R & D unit and startup incubator in Israel. Through publications, public events, and conferences (under the title "shaping the future"), Mindcet uses different techniques of future telling to establish a kind of "sociotechnical imaginary" about education. This imaginary is framed and represented, contextualized and performed publicly, and creates a unique predictability expertise. For example, part of this "future telling" happens through events and spaces of experience. Teachers, students and other stakeholders are invited to experience new and exciting technologies. Even though these events are thought-provoking, they are also disconnected from a specific context, and the educational applicability of the technologies presented is, at best, vague and open-ended. Nevertheless, the appeal of the sociotechnical imaginary persists. At the basis of this imaginary is an inevitability, not just of specific technologies, but also that of "progress" and digital culture as a whole. I aim to address the ways in which the "market" serves as the deciding factor in how the imaginary is realized, and how "techniques of future" reproduce existing power dynamics between the educational world and the techno-business world.

The Politics of Technology: A View on the Connecting Equality Programme Alejandro Artopoulos, Universidad de San Andrés; Gustavo Seijo, Universidad Nacional de General Sarmiento / CONICET

The Connecting Equality Program (CEP) has been delivering public funded netbooks among the students of public high-schools in Argentina since 2010. The CEP delivered 5.4 million netbooks in six years and it can be regarded as the largest 1:1 (one child : one netbook) national program in the world. In Argentina the CEP received its generous funding because it was depicted as an educational initiative even though the national decree which created the program stated that it was aimed at the reduction of educational, social and digital gaps in Argentina. This article argues that no single institution can be labelled as an archetypal Argentinian public high-school. Argentinian high-schools differ, at the very least, in terms of access to academic resources, national infrastructure, and information and communication resources. As the CEP design both in technological and pedagogical sides, was conceived as "one fit for all", it considered all public high-schools as similar or equal with regard to the incorporation of the netbooks. The analysis here presented draws on the results of the study of a group of researchers who surveyed a large and considerable amount of the high-schools that took part in CEP in the entire country. These results highlight a variety of different and ubiquitous results stemming from this public program depending on the local access to the resources previously referred. We claim in this written piece that a large proportion of the eclectic educational results of the CEP can be explained by thoroughly understanding the Argentinian high schools in the first place.

Ulysses and the Sirens, Frankenstein, Cyborg and the Passion for Knowledge: Training in the Style and Sensibility of Science and Technology Studies Assunta Viteritti, University of Rome

This paper aims to reflect on how to develop STS sensibility, beginning with the experience of a university training exercise realised in a sociology course at the Rome University. Inspired by Latour’s book, Cogitanus, and the Trevor Pinch paper, Teaching Sociology to Science and Engineering Students: Some Experiences from an Introductory Science and Technology Course, the paper aims to reflect on three years’ experience of university education in a Rome Sociology Department where an attempt is being made to use STS contents in order to view social research. Based on field experience and indications from the literature, various trajectories have been identified regarding learning STS (in)sensibility: 1) students who are not attracted, who close their ears, as Ulysses did with the sirens; 2) students who agree to juxtapose new words inspired by STS to more consolidated language, approaches and words that come from the sociology literature, but are unable to break away from consolidated and traditional sociological viewpoints and create linguistic hybrids that tend to go in a Frankenstein direction (impossible juxtapositions) or Cyborg ones (creative juxtapositions); 3) students who immerse themselves totally in the new viewpoint, are attracted to it and unable to stop doing so, experiencing a full-on flirt (Bruni 2011) and passion for knowledge (Gherardi, Nicolini, Stratton 2007). The three kinds of efforts (Gibson 1986) bring to the fore different situated knowledge and trajectories of legitimate peripheral participation (Lave & Wenger 1990). Thus the learning experience that germinates the development of STS styles and (in)sensibility implies a work of teaching/learning and performative actions centred on knowing and not knowledge (Gherardi 2000), where knowledge is vulnerable and disruptive, situated and in action.

Interdisciplinarity, Science, Technology and Teacher Education in a Historical-critical Perspective Natalia de Lima Bueno, Technology University of Paraná

This paper reports on an interdisciplinary degree course in Natural Sciences at a public university in the south of Brazil, based on a historical-critical pedagogical approach. It emphasizes experiences in the teaching-student relationship in higher education around teacher education, in the construction of interdisciplinary activities that expose the contemporaneity of science and technology in a critical perspective in order to relate to the aspects of reality faced by the future professor of Natural Sciences. It brings epistemological aspects in the sense of evidencing the dimension of science, technology present in the organization of pedagogical work. It seeks to emphasize the interdisciplinary approach required for teacher education based on a progressive pedagogy and a critical perspective on science and technology. We will deal specifically with the historical-critical approach in dialogue with natural sciences and with
technological advances, showing methodological aspects of teacher education in public education in Brazil.

Chair: Natalia de Lima Bueno, Tecnology University of Paraná

242. The Ethnographic Effect: Imagining a Next Generation of Methodological Possibilities III

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Fairfax A

STS scholarship draws on two distinct methodological imaginaries when considering how it produces knowledge. On the one hand there are detailed, meticulous and somewhat prescriptive guidelines to data collection, production and analyses sanctioned by particular scholarly communities. On the other hand, we find theoretically innovative descriptions of results based on methodological tactics that privilege unruly, creative and improvisational approaches. This panel invites scholars who wish to explore the space in between these two families of methodological approaches. It begins from the assumption that while academic knowledge production depends on methods and theories, unruliness and creativity are intrinsic to their emergence. We hope to recuperate the notion of the exercise as an embodied space of rediscovery that embodied responsiveness pertains to the researchers' process through, and are maintained by, bodily action. This project, through an experimental theater intervention, explores the ways that embodied responsiveness pertains to the researchers' process of analyzing human behavior in the laboratory. Cognitive neuroscience seeks to identify neural correlates of human behavior, and thus researchers must create laboratory spaces and conditions to evoke behavior that can allow for brain imaging and analysis. This project, a collaboration with a cognitive neuroscientist, uses video recordings of performance interactions as an empirical object to discuss, observe and analyze. The interactions resist easy analysis; they are uncanny, ongoing, enculturated, full bodied. Sitting in front of video recordings of uncanny interactions, my collaborator and I also record our own interactions as we analyze the interactions of others, and attend to the resources we ourselves use in making sense of others. Interestingly, we find that we lean heavily on two resources: one is a strategy for creating order by identifying a logic/language by which to code the behavior we see. The other is a strategy for understanding situated meaning on behaviors by mimicking, trying out, and otherwise physicalizing the gestures of others. Rather than existing as two separable processes, these strategies are nested in complex ways. This projects contributes to a longstanding STS concern with reflexivity (Mol 2002) and performativity (Law 2004) of STS methods, as well as to STS work on cognitive science and interdisciplinarity (Fitzgerald and Callard 2015).

Affordances of the Smartphone for Knowing Together Karen Waltoor, Aarhus University

In the hands of my interlocutors, young Muslim women in Copenhagen, the smartphone is a tool that relates them to others, make up part of the (media) environment, and serves as a technology of the imagination. The smartphones is also, I argue, a fieldworkers' device in the world of today, inviting for experiments, collaboration in research, and with ways of seeing, perceiving, and making sense. Haraway presented the idea of “apparatuses of visual production, including the prosthetic technologies interfaced with our biological eyes and brain” (1988:589), underscoring that “vision requires instruments of vision; an optics is a politics of positioning” (586). There are “no seats of consciousness removed from the flesh...being a body and knowing go together” (Law 2015: 9), and raw data does not exist independently of the researcher and her instruments (cf. Bateson 2000: xxx-xxvii). Thus my body, with the prosthetic devices, visualization techniques and other technology I make use of, configure a distinct infrastructure for seeing, thinking and knowing. A new way of seeing and sensing arguably changes the affordances perceived in the environment. The term affordance points two ways: to the environment and to the person perceiving. It indicates that to perceive the world is to co-perceive oneself. The environment, other persons and beings, as well as 'detached objects' (tools, utensils) afford special types of behaviour on the part of the perceiving individual in this understanding (Gibson 1979: 9). The smartphone affords knowing and sensing together in new ways.

Don't Worship the Stars: Opening the Black Box of 'Algorithmic Management' Hatim Rahman, Stanford University

From search engines and online review systems to political campaigns, judiciary proceedings, military campaigns, and the operation of markets, algorithms increasingly pervade every sector of our society. This is especially true in the emerging ‘gig’ or sharing economy in which algorithms manage entire workforces and projects. Undergirding this algorithmic system is the rapid proliferation of ratings and numerical feedback; these evaluations have been shown to powerfully impact the trajectory of careers and establishment of trust. Yet, we lack knowledge of how ratings are socially constructed in real-time. In this paper, I conduct a digital ethnography of work in one of the largest online labor market to theorize the ways in which ratings are used as a social resource to facilitate work, resolve disputes, reward cooperation, and in many cases threaten compliance. The findings show that ratings are indeed the lubricant of digital labor and ‘algorithmic management,’ but ratings are messy and negotiated before, throughout, and even after a rating is given. This paper thus contributes to our understanding of how ratings are constructed and used in situ and answers the call within STS for theoretical and empirical work that is nuanced and firmly grounded in close observations of work.

Dubbing Objects as Archaeological Analytics Ben Alberti, Framingham State University

An archaeologist’s “then and there” of fieldwork is fully material but is at a remove from past peoples. Much of what is encountered remains one thing (a bag of soil, a fragment of bone), promising, hopeful, but not “ethnographic” until it arrives in a laboratory and some quality or other -- diet, date, demography -- emerges. Other encounters are more immediate: a contour in ceramic or an outline of stone. But “then and there” is also a distanced, imaginative encounter with a past. Archaeology’s “ethnographic effect” is to translate the experience at the trowel’s edge into other media -- data, diagrams, writing -- that “are” the past. I have studied museum and private collections of anthropomorphic ceramic pots from first millennium Argentina. Influenced by the ontological turn, my goal has been to find ways to enable alterity to drive analysis such that it produces an effect on archaeology’s conceptual repertoire. If looking as much as laboratory analysis is an ontological exercise, the trick is to doubt one’s sight, to see and measure such that new things appear. A presumption is that the materials themselves be allowed some kind of autonomy in analysis. On this basis I have taken steps semi-intuitively when examining and later deriving interpretations from the pots, steps...
Navigating the gap: Maintaining and modifying the science-policy gap in energy policy debates in Finland

Kamilla Karhumaa

While the literature on the science-policy interface contains plenty of models and heuristics for ideal knowledge brokerage, there are still few empirical accounts of academics deliberately participating in political debates. This article empirically examines how academics, and other actors, move flexibly between different repertoires of describing and justifying the autonomy of science and the necessity of science-policy interaction. We examine a 10-person “Professor group on energy policy” that was formed in 2013 with the aim of influencing energy policy debates in Finland. The self-organized group, consisting of professors from different fields, participated actively in energy policy debates through various public statements and personal interaction with policy-makers during 2013-2016. The group aimed to and succeeded in sparking public debate about energy futures in Finland. The analysis is based on reports, media material and interviews with group members and energy policy stakeholders. We examine how different actors situate the professor group with regards to a gap between science and policy. Maintaining the scientific autonomy of the group serves to bring credibility, legitimacy and authority to actors that were supportive of the claims of the professor group. Stating that the gap between science and policy is transgressed serves, in contrast, as a method to question the credibility of the group’s arguments. The analysis demonstrates that there is no ideal way of brokering the gap between science and policy. Rather, the gap between science and policy can be viewed as a resource that is used flexibly by different actors to forward their own claims.

What Sense Should We Make of Astronomy’s Sensing Devices?

Eve Seguin, UQAM

The existence of planets outside our solar system was postulated since the time of Giordano Bruno. The claim that multiple worlds might exist out there certainly stroke imagination and provided comfort to those disillusioned with our terrestrial life. Yet, for centuries it had much more in common with fiction than science. That was until 1992, when a team of astronomers documented the discovery of the first confirmed exoplanet. Since then, hundreds of exoplanets have been discovered thanks to these powerful sensing devices that telescopes are. On 22 February 2017, the Nature announcement of the solar system TRAPPIST-1 discovery sparked an unprecedented excitement around the world. What sense should we make of astronomers’ endeavour to discover exoplanets? What are their goals and motivations? What is the nature of their action? In order to answer these questions, we will revisit one of the most convincing political theories of science, that of Bruno Latour. This will allow us to put forward that astronomy is politics by other means. To test this hypothesis, we will document concerns and research efforts, parallel and complementary to those of astronomy, made by several scientific disciplines and organizations. Compared to disciplines such as biomedicine, and objects of study such as artificial intelligence, astronomy and exoplanets have not been an important focus of attention in STS in recent years.

Of Bits and Pretzels and Resourceful Bureaucracies:

Imaginaries of “Conservative Innovation” in Bavaria

Kate Greber, Munich Center for Technology in society; Sebastian Michael Pfotenhauer, Technical University Munich; Alexander Wentland, Technical University of Munich

In recent years, many regions around the globe have been subject to a flurry of innovation initiatives, trying to establish themselves as innovation hubs. Many of these regions are struggling how to reconcile this global imperative of innovation with traditional socio-economic structures and cultural identity. In this presentation, I explore how regions navigate this tension and build unique innovation cultures in keeping with existing sources of identity and social cohesion. Using the German state of Bavaria as an in-depth case study, and drawing further on previous work that explores the global circulation of innovation models, I demonstrate that Bavaria enacts a particular imaginary of “conservative innovation.” This imaginary is characterized by a tendency to preserve traditional socio-economic orders rather than disrupt them; to favor and safeguard political and economic incumbents rather than enable new entrants; and to act from a perceived position of strength or even saturation. Viewed through this lens of local culture, innovation ceases to be a source of disruption and social change and rather becomes a mechanism of socio-cultural reproduction that extends existing identities and frames of reference into the future. This explicit construction of innovation as a source of continuity allows Bavaria to straddle a range of persistent tensions, including traditionalism vs. technological optimism (“with laptop and lederhosen”), cosmopolitan vs. rural lifestyle, and agricultural vs. high-tech state. The imaginary of conservative innovation draws its strength from, and reinforces, a relatively stable political and economic landscape that has enacted regional development through a corporatist “small-state” model since WWII. My research provides new support for a social-constructivist foundation of innovation theory, highlighting the unique local situatedness and importance of inter-regional differences in the rationalization and practice of innovation. It provides a counterpoint to the prevalent universalist tendencies in innovation theory around systems and models.

Energy Transitions and Environmental Justice: Planning for the Present

J Richter, ASU

The energy landscape in the United States is undergoing multiple transitions, as energy from coal is falling as natural gas supplants its place; meanwhile, renewable energy sources, such as wind and solar, are becoming more cost effective more quickly than predicted. The transition from highly polluting technologies like coal-fired power plants can be seen as necessary for reducing carbon emissions and environmental pollution that affects human health. However, the political and economic issues that these transitions will cause to existing energy communities have not been grappled with. This presentation delves into one example of the thorny issues that energy transitions raise, in order to illuminate some of the complex and fraught ways that energy transitions stem from, reveal, and create systemic inequities for energy communities. Located on the Navajo Nation, Navajo Generating Station is the largest coal-fire power plant in the Western United States, and also one of the dirtiest in terms of pollutants emitted. Slated for closure in 2019, NGS has been of crucial importance to the region since the mid-70s, sending electricity from the plant to major urban centers like Phoenix. It is also a major employer of the Navajo, and both the Navajo and Hopi rely on royalties from the Kayenta Coal Mine for their tribes. Using concepts from environmental justice as well as socio-energy design, an analysis of the NGS presents both a cautionary tale for energy transitions, as well as opportunities.

Transhumanism: Critical STS Engagements

Eve Seguin, UQAM

Transhumanism is shorthand for transitional human being. So-called Transhumanism, commonly denoted by “H+” or “>H,” is a cultural, intellectual, and, some have argued, religious movement, which advocates radical human enhancement by way of the anticipated convergence of “GNR” technologies—“G” for genetic engineering and biotechnology,
“N” for nanotechnology, “R” for robotics and artificial intelligence (Dinerstein 2006). At what is arguably the movement’s outermost limit, many transhumanists anticipate the eventual transcendence of human biological constitution altogether; and the arrival of a postbiological or “posthuman” condition, Humanity 2.0. This panel aims to bring together STS scholars engaged in critical research on any and all dimensions of the transhumanist movement. Topics for exploration might include, but are hardly limited to, transhumanism’s ties to eugenics, the movement’s advocacy of anti-aging and life extension medicine, transhumanism themes in science fiction film and literature, and transhumanism’s discursive ties to the so-called “Singularity.” Ideally, such explorations would delineate the sociohistorical conditions under which transhumanist ideas have emerged and circulated, attend to the material practices through which transhumanist ideas are threaded, and identify the movement’s key progenitors and advocates.

Participants:

Transhuman Rights: Rawlsian Principles as a Framework for Discussing Transhumanist Challenges Morten Bay, UCLA Department of Information Studies

Political philosopher John Rawls sought to find a theory of justice and fairness that was free of normative or dogmatic evaluations, which promoted liberty and at the same time avoided the sacrifice of individual rights for pragmatic, collective actions. Although he was never engaged in the matter directly during his lifetime, his principles are applicable to many of the ethical challenges facing society, as transhumanism emerges. Many of these challenges concern rights: The right to transform one’s body by technological means, but also the right not to be compelled to do so due to e.g. workplace/labor market requirements or societal health mandates. Transhumanism raises the question of when one ceases to be human, and whether transcending humanism also means relinquishing one’s human rights. Because John Rawls’ principles are so detached from normativity and based in reason, his principles of personal autonomy and justice constructed from an original position with no regard to prior conditions (the veil of ignorance) are highly applicable to questions of transhumanism. In this presentation, the author will show how Rawls has an answer to many of the questions posed by transhumanism. Through presentation of different case studies, it will also be shown how Rawls’ principles can act as a framework for the concrete legislative and policy-related discussions awaiting political leaders as transhumanism becomes a more integrated part of society.

Uploaded Anthropologies: Moral Theory and STS in the Transhuman Debate Levi Checkettts, Graduate Theological Union

This paper brings STS and moral theory into dialogue. More specifically, I take STS theories and concepts and use them to inform moral debate. Transhumanists like Ray Kurzweil and Hans Moravec support the technological project of “consciousness uploading,” the transmigration of an individual’s consciousness from their brain into a non-biological substrate, such as a computer. Transhumanists’ “bioconservative” adversaries such as Francis Fukuyama and Leon Kass argue that any alteration to the integrity of a human organism is a violation of human dignity. Both sides use moral arguments: the transhumanists wish to enhance human performance and alleviate suffering and death, and the bioconservatives wish to uphold human dignity and protect the species from reckless tampering. However, the division between these two views is not a matter of emphasizing one set of benefits over another; each side is undergirded by a philosophical understanding of the person which is incommensurate with their opponents’ view. Transhumanists support an understanding of humanity as malleable, while bioconservatives see the biological organism as a sacred Gestalt. This difference in views sets up an impasse for moral thought on this topic. This impasse can be addressed using Latour’s notion of the “Modern Constitution.” Both transhumanists and bioconservatives defend their philosophical perspectives as though they were purified scientific principles. In fact, both positions are adapted from ancient perspectives of the person, and neither are supported by scientific understanding. I contend that neither are as modern as they pretend, and that the mistake of taking philosophical views as “purified science” is, in this case morally dangerous. Both bioconservatives and transhumanists alike make this category mistake, but it is more dangerous on the part of transhumanists because the uploading project threatens to destroy the person as understood through philosophy, a situation otherwise known as death. My hope is that this work stands as preliminary work in collaboration between the ancient, though complex, field of moral theory and the new, though underutilized, field of STS. As ethical concerns emerge further in relation to science and technology, such collaboration will be more necessary.

Robert C. W. Ettinger and the (Trans) Human Condition Grant W Shoffstall, Williams College

This paper offers a (re)interpretation of Robert C. W. Ettinger’s (proto) transhumanism, a virtuoso vision (Ettinger 1998-2009) that was both a source of inspiration in his era and a subject of controversy. Ettinger’s status derives largely from the commercial success of The Prospect of Immortality (Prospect), his 1964 “freeze now!” manifesto, which played a pivotal role in the cryonics movement of the American 1960s. Less well known is Ettinger’s 1972 follow-up to Prospect, Man into Superman. A key proto-transhumanist, I demonstrate that Ettinger’s writings took shape in sustained dialogue with a set of postwar technoscientific developments and expectations, the significance of which were quite presciently apprehended by Hannah Arendt. Indeed, in the prologue to The Human Condition (1958) Arendt outlined the contours of an historical moment marked by what she characterized as a burgeoning “rebellion,” a desire to exchange “human existence as it has been given, a free gift from nowhere (secularly speaking),” for something made. Arendt sketched manifestations of this desire to facilitate the exchange of the given for the made across three interrelated domains of (then emerging) technoscientific activity: space exploration, biotechnology and human life extension, and (cybernetic) automation. I leverage Arendt’s insights to demonstrate that Ettinger proposed cryonics as a way to “close the gap” between the perceived technoscientific shortcomings of his day and the envisioned realization of the “transhumanist” ends towards which these techniques aimed – the remaking of life and its framework. The paper concludes with a consideration of the interpretive leverage Arendt might provide in engagements with transhumanism beyond Ettinger and cryonics.

Chair: Grant W Shoffstall, Williams College

245. Indigenous Knowledges and Technologies II

Traditional (Closed) Panel

4:00 to 5:30 pm

Sheraton Boston: Floor 3 - Gardner B

Indigenous knowledges and technologies are a marginal topic in STS, with few studies, articles, and books being published on the topic despite the array of experiences and approaches from other fields such as media studies, visual anthropology, telecommunications, human rights, to mention a few. In its early years, STS focused mainly on scientific knowledge, particularly on controversies and on the construction of scientific facts. In the mid-1980s it expanded its focus to the construction of technology with the emergence of SCOT and other research programmes. About the late 1980s and early 1990’s, a turn towards the science-policy interface brought new attention to local knowledges and expertises in the field. Nowadays, citizen and open science are popular research topics and receive growing attention from STS scholars. However, indigenous knowledges and technologies remain marginal. STS appears still to be in need of a process of decolonisation, as to a large extent it is still insensible to knowledges, technologies, and epistemologies that have arisen from indigenous, aboriginal or native peoples around the globe. This panel seeks to bring together researchers interested in topics related to indigenous knowledges and technologies, including, but not restricted to: a) appropriations of indigenous knowledges and technologies; b) indigenous knowledges and biopiracy; c) indigenous knowledges and technological policymaking; d)
uses and developments of information and communication technologies (ICT) by indigenous peoples; e) decolonial and postcolonial indigenous STS; f) clashing ontologies between indigenous and modern societies.

Participants:

Indigenous People’s Limited Participation in the Brazilian National Plan of Adaptation to Climate Change Tiago Ribeiro Duarte, University of Brasília

The Brazilian National Plan of Adaptation to Climate Change (PNA) was developed between 2012 and 2016 by the Brazilian Ministry of Environment (MMA). In several ways, the process through which this plan was made was very participative. A great deal of effort was made by the MMA to engage diverse sectors of the Brazilian Society, including members of the scientific community, of NGOs, as well as industry and civil society representatives. Furthermore, public consultations were held to discuss its framework and a first complete draft of the plan. It also worth noting that it recognised traditional knowledge as a relevant source of information for its preparation. However, indigenous knowledge had a very limited impact in the PNA. In spite of it including a sub-chapter on the adaptation of these diverse ethnic groups to climate change, its writing was carried out by member of the Brazilian National Indian Foundation (Funai), a government institution, and of the Amazon Environmental Research Institute (IPAM), an NGO focused on the sustainable development of the Amazon. Indigenous people only had a limited participation in its formulation as Funai consulted some of their leaders to obtain information for the writing of the sub-chapter. In this sense, they were not directly included by the MMA in the PNA’s formulation. This paper seeks to describe the process through which the PNA’s sub-chapter on indigenous people was written to bring light the limited effort made by the MMA to widen the participation of these ethnic groups in the formulation of Brazilian climate change adaptation policy. It shows that although public participation in climate policy-making in Brazil is growing, indigenous peoples are still not fully included in climate policy formulation. It is based on qualitative interviews carried out with members of the MMA, Funai, IPAM and with indigenous leaders.

Indigenous Telecommunications: Community Innovations in Mobile Connectivity and Intranets Claudia Magallanes-Blanco, UNIVERSIDAD IBEROAMERICANA PUEBLA

In the last few years community informatics connectivity has proven to be the way to connect communities not attended by large telecommunication corporations poorly serviced by them. There are different experiences around the globe of communities that have developed technological processes that allow them to attend to their communication needs. Indigenous peoples are no exception, and have shown innovative telecommunication initiatives that go from broadcasting to mobile systems. This paper describes two innovative indigenous telecommunication initiatives from Mexico: the community cellular network in Oaxaca and a community intranet in Chiapas. Based on interviews, participant observation and documentary analysis, this paper describes the networks that have enabled these projects and how they are interconnected. It also reflects on the innovative forms through which indigenous communities are appropriating technologies as ways to achieve autonomy and self-determination, while at the same time negotiating with the Mexican State and telecommunication corporations to become actors in the telecommunications scenario in Mexico. There is a growing number of indigenous initiatives and experiences using telecommunications. Most of them are fairly recent and have not yet been systematized to register their achievements and difficulties. This paper, derived from an ongoing research, seeks to make an initial contribution to the mapping of actors, knowledge and practices of indigenous telecommunication in Mexico.

Shamanic Microscopy César Enrique GIRALDO HERRERA, Institute for Science, Innovation and Society, University of Oxford

Shamanism is generally understood through reference to spirits and souls. However, these terms were introduced as part of processes of translation-purification by Christians evangelising Amerindian peoples, whom they described as extremely biased towards empiricism. A deep decolonization of thought ought to deconstruct incommensurabilities that arise from these processes and reclaim knowledge. In Amerindian epistemologies visions, rather than being dismissed as delusions or symbolic constructs, are recognised as means of perceptual access to physical reality. Shamans claim to diagnose and treat infectious diseases and to assess the status of wildlife resources through interactions with pathogenic agents perceived in visions. Paintings of those visions are means to demonstrate shamanic proficiency. This paper examines perceptual capabilities that shamans might be employing and analyses these paintings as test of proof. The structure of the eye affords a form of microscopy of retinal structures and of microscopic objects flowing within them, including cells and microbes during systemic infection. Shamanic practices optimize entoptic microscopy. Shamanic art displays characteristic features of shadow formation, consistent with the entoptic microscopy description. Phenomenological access to the microscopic world and similarities between Amerindian ontologies and microbial ecology indicate an underlying commensurability between these forms of knowledge. STS has largely presumed that phenomenological access to the microbial world is forcibly mediated by technologies of modernity. Thereby, microbiological knowledge and its objects of study are generally assumed to be disjoint from the pre-modern past and incommensurable with the ontologies of non-Western medical traditions, such as shamanism. This estrangement perpetuates past processes of translation and purification.

Have We Ever Developed “Modern” Technologies?

Agricultural Irrigation Technologies in Peru and their Organizational, Symbolic and Environmental Characteristics Julio Sebastián Zárate, Grupo de Análisis para el Desarrollo

In recent years there has been a growing interest among the academic community in understanding how the andean agricultural systems operate. At the same time, in many countries of South America, the indigenous populations are still regarded as the “keepers of the planet’s biodiversity” (Nazarea 2006). However, many public and private entities bearing a “indigenous discourse” have acclaimed decision making and political representation powers arguing that they possess an “advanced” technical knowledge (Herrera 2009). This has affected various policy strategies that aim to achieve a better environmental management, generating tensions between “technical knowledge” and “indigenous knowledge”. This article proposes a different perspective, arguing that both “modern” and “traditional” technologies can be understood beyond their mechanisms and productive characteristics. On one hand, andean technologies are able to coordinate and synchronize in time and space the realization of very diverse complementary tasks in diverse ecological spaces (Earls 1982, 2005). On the other hand, “modern” technologies are cost efficient, oriented towards earning profits and their internal processes are synchronized. Taking both logics into account, we will describe and analyze how agricultural technologies focused on water distribution have developed in different regional and local spaces in Peru. For this, we will take into account the organizational, ecological/environmental and cultural aspects of technology. The objective of this proposal is to discuss the relationship between culture, technology and the environment, taking into account the geographical characteristics of the regions in which these technologies are employed.

Technological Autonomy as an Articulating Axis in the Creation and Socialization of Knowledge in Indigenous Peoples of Oaxaca and Chiapas, Mexico Carlos Francisco Baca Feldman, Universidad Iberoamericana Puebla; Erick Huerta Velázquez, Redes por la Diversidad, Equidad y...
246. Time and Temporalities

Traditional (Closed) Panel

Chair: Claudia Magallanes-Blanco

IBEROAMERICANA PUEBLA

Participants:

The Pace of Science: An Ecological Perspective
Stasa Miliojevic, Indiana University; Filippo Radicchi, Indiana University; John Walsh, Georgia Institute of Technology

Scientific fields play a crucial role in the advancement of science as loci for knowledge creation. Contemporary science and technology policy has been primarily driven by the evidence that focused on increasing the productivity and impact of individuals or research teams. However, the success of any particular individual or a team does not necessarily translate into best outcomes for science at a broader level. Shifting the study of collaboration and productivity to the level of fields, and focusing on their structural characteristics, has the potential for major advances in our understanding of the dynamics of science, with significant implications for science policy. Hence, in this paper we investigate the relationship between the portfolio of research teams in a field and the pace of advance in the field. We use field-level data on team size distributions and their (inter)disciplinary composition to measure the ecology of research teams in a field and to capture field diversity and innovativeness. We use natural-language processing approaches to track the rate of concepts appearing, diffusing, and decaying in a field, producing a natural history of concepts in the fields. These measures show faster or slower rates of growth in the knowledge coverage of a field. We examine how the field-level team composition is associated with its pace of growth and discuss the policy implications of our findings.

Chronopolitics in Experimental Physics:
Teresa Virtová, Institute of Philosophy, Academy of Sciences Czech Republic; Filip Vostal, Institute of Philosophy of the Czech Academy of Sciences; Libor Benda, Centre for Science, Technology, and Society Studies, Institute of Philosophy, Czech Academy of Science

Contemporary debates on academic ‘acceleration’ emphasize the devastating effects of speed culture. In this connection, many commentators call for ‘slowdown’ in science (e.g. Berg & Seebro 2016; Pels 2003). These views however tend to victimize academics and, by implication, neglect their agentic capacities to craft temporal and organizational routines. Following the emerging body of STS studies investigating scientific temporality (Felt 2016; Bruyninckx 2017) and our empirical data we aim to problematize this one-dimensional and oversimplified interpretation. In this paper, we contribute to the discussion by critically interrogating the project time and process time dichotomy proposed by Oili-Helena Ylijoki (2016). Ylijoki suggests that the project format has gradually become a standard way of research organization and is often in conflictual relationship with the unpredictable process regime that represents inner logic of research arrangements. Drawing on our ethnographic work in two experimental physics departments in the Czech Republic, we focus on agentic strategies that converge project and process time. In particular, we introduce four different technologies of timework: multiplication of projects, project flexibilization, diachronization of project and process, division of labour. Even if the navigations between the project and process temporalities are hardly smooth and in themselves account for time-consuming activities, conceiving Ylijoki’s dichotomy only in terms of conflict is reductive. In our paper we therefore present different ways of temporal coping, adaptation and flexibilization that, in effect, ease the relationship between project and process in science.

On the Epistemic Significance of Time in Science and Its Neglect in STS Research
Libor Benda, Centre for Science, Technology, and Society Studies, Institute of Philosophy, Czech Academy of Science

Science & Technology Studies (STS) have revolutionized the way we think about science – its day-to-day practice, its relationship to other segments of society, and the nature of the knowledge it produces. Through numerous empirical case studies STS provided us with a detailed picture of the process of scientific knowledge production and its situatedness in the environment where it takes place. In this paper I argue, however, that in studying the epistemic role of various variables that take part in this process STS scholars have focused too much on traditional social categories, such as “interests” and “power relations”, while the category of time and its epistemic significance almost completely escaped their attention. Since the constitutive role of time in scientific knowledge production is beyond any discussion, as I will demonstrate on a few selected studies of scientific practice, I argue for a more systematic and focused STS research on the temporal dimension of science and its epistemic function. Such research would not only help us better understand the mechanisms of scientific knowledge production; it could also substantially contribute to our understanding of the temporality (or temporalities?) of science and thus play a crucial role in the recent debates on “fast vs. slow” science/academia.

Sustentabilidad A.C.

Indigenous communities in Mexico, and in other parts of the world, have generated processes of technological autonomy that seek to use information and communication technologies (ICTs) in order to reinforce their collective processes of socialization, creation and maintenance of their knowledge. The digital divide that those communities have faced, largely due to the fact that they are not profitable enough for large companies, has set a different pace on the adoption of technology allowing them to think about what kind of technologies they want to use, what characteristics they should have, how they could be benefited or harmed. In this context, two processes have been able to challenge the imaginary that refers to access to mobile communications and Internet. This paper will present the results of the path of two indigenous networks: the community mobile phone network in Oaxaca and the community Intranet in Abasolo, Chiapas, the way in which these networks are designed and managed incorporate several aspects of indigenous way of thinking and caring and how those visions are coincident with haker ethics. We find it relevant to think of these experiences as ruptures of a logic that understands access to telecommunications as the ultimate goal to achieve, instead prefigures a new logic in which the decision process on the use and appropriation of technology allowing us to see the possibilities of weaving “another type of communication”.

For a Pedagogy of Future
Emilia Araújo, universidade do minho

This communication seeks to debate the relevance of a pedagogy about the future. Social scientists have long given a lot of attention to time horizons. Part of these works have stressed the techno-scientific nature of human and social future, giving account of several implications brought about by major trends societies are going through in the present. Even the greater majority of these studies signal the modes in which present action in general, and political action can change direction and consider alternative routes for the humankind time ahead, the future rarely appears problematized as a category of action, that can be object of information, debate, and public participation. In this communication, we are going to show how important and useful is to study as well as to debate people representations of future, especially in what refers to the profusion of technologies and its constitutive power over everyday life, namely about their power to make social processes, dependences, and linkages more technological, that is, insensible. The main idea presented in this paper sustains that public entities, such as schools, should approach future from early age onwards giving people a chance to know the major trends and acquire knowledge and instruments for alterative, autonomous, and creative pathways of technological development.
to prevent from it, or to avoid, retrieve or remake it. The communication is supported on the results of a research made in Portugal involving interviews made to different social groups about their images on the future, including trust, confidence and identification with technological devices which are made public as devices which are going to “eliminate the probability of human error” (in medicine, in car industry, in communication, among other).

Chair: emilia araújo, universidade do minho

247. Energy Matters
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Hampton B

Participants:

Kelly Joyce, Drexel University; Diane Sicotte, Drexel University

Cities are engaged in energy politics and expansion. To investigate the policies of energy systems, we focus on Philadelphia, Pennsylvania, USA as a case study. Philadelphia is the site of ongoing efforts to expand the fossil fuel infrastructure even as the city aims to meet new emission targets and rolls out sustainability programs. Key stakeholders involved in the fossil fuel expansion efforts are city and state officials, labor unions, industry leaders and spokespeople, and civil society groups and organizations such as Food and Water Watch and Delaware Riverkeepers Network. To investigate this topic, we used a multi-method approach that includes archival research, content analysis, informational interviews, and participant observation. In this presentation, we contribute to science and technology studies scholarship on social movements by showing how the decentralized, heterogeneous anti-fossil fuel movement combined with markets and local labor politics effectively slowed down fossil fuel expansion in Philadelphia. We also contribute to STS literatures on how socio-technical systems change (or do not change). Demonstrating how energy systems are co-produced by the interplay between city, state and federal policies, and technologies, we highlight the importance of paying attention to both infrastructure (e.g., pipelines, refineries, oil trains) and policies in energy projects. As a legacy fossil fuel state, Pennsylvania laws primarily privilege the interests of fossil fuel industry and the creation of fossil fuel infrastructures. Renewable energy companies and anti-fossil fuel activists are well aware of this, and are using litigation at the state and federal levels to transform socio-technical systems.

Dark Matter: Renewable Energy Transitions, Black Theory and Posthuman Currents
Myles Lennon, Yale University

The posthuman turn in the social sciences has demystified the labyrinthine workings of industrialized energy by calling attention to human/non-human assemblages, multi-species agency, and the material currents of power across energy supply chains. Curiously, though, this literature has elided the matter of “human error” (in medicine, in car industry, in communication, among other).

Chair: Changdeok Gim, Arizona State University

248. STS (In)sensibilities and Health Professions Education
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Jefferson

This panel will explore contemporary health professions education through the lens of STS: spanning the training of physicians, midwives, nurses, physician assistants, emergency medical technicians, and other biomedical clinical practitioners. Papers will ask: how does health professions education prepare future practitioners to “sense” the patient body, and to respond appropriately to medical problems? How do trainees come to grasp their social roles as caregivers, and how do they acclimate to the use of medical technologies? Papers may also consider challenges faced by both students and mentors in health professions education: including how current training paradigms may inadvertently foster insensibilities towards patients and fellow medical practitioners. This panel will bring renewed attention to education and training within the health professions in order to understand how training presents, requires, or conveys ways of knowing that shape the development of medical professionals’ subjectivities and practices.

Participants:

Knowing, Not Knowing, and Knowing In-Between: Responding to Epistemological Rifts at an American Medical School
Julia Knopes, Case Western Reserve University

As landmark research in the social sciences has revealed, medical students must frequently contend with uncertainty as they develop new skills and knowledge as future physicians. Drawing on 12 months of ethnographic research in a Midwestern US allopathic medical school, this paper aims to nuance the concept of “uncertainty.” It demonstrates that the boundary between ‘knowing’ and ‘not knowing’ is fluid when medical students learn to integrate multiple forms of knowledge to understand complex biomedical concepts. Throughout the study reported on here, when medical students lacked one type of information about a topic, they frequently drew upon other forms of
knowledge to "fill in the gap," thereby reconciling what they felt
certain of with their initial uncertainty. This paper will present
key examples from anthropological observations and interviews
to illustrate the impact of students’ micro-level encounters with
uncertainty on the broader epistemology of clinical learning and
practice. It will suggest that physicians-in-training do not simply
acclimate to ‘not knowing,’ but that early encounters with
uncertainty may prompt medical students to creatively synthesize
information and develop active responses to uncertain situations.
The paper will engage with science and technology studies, and
the theme of Sensibilities, by highlighting how biomedical
practitioners learn to effectively “grasp” new scientific
knowledge and to “respond” when they seem to lack key skills or
information.

Patient Labour and the Consequences of Excellence at the All
India Institute of Medical Sciences (AIIMS) Anna Ruddock,
King’s College London

Opened in Delhi in 1956, the All India Institute of Medical
Sciences (AIIMS) is an enormous government-funded hospital,
anomalous in the Indian public healthcare landscape for
employing many of India’s most respected doctors, who provide
a high standard of free or low-cost care to patients of low
socioeconomic status. It also occupies an unassailable position
atop the hierarchy of Indian medical education. Each May,
around 90,000 candidates compete over 72 seats at the college,
which makes for an acceptance rate of less than 0.01%. The tiny
minority of successful students are catapulted into an exclusive
club, with their achievement celebrated in the national press.
In this paper, I draw on material from interviews and observations
gathered during twelve months of ethnographic research into
MBBS education at AIIMS. I explore the ways in which the idea
of medical excellence is inculcated in trainee doctors, and the
consequence this understanding has for the Indian healthcare
landscape more broadly. What does it mean for AIIMS and its
students to be “the best”? And what are the consequences for
Indian public health, when perceptions of medical excellence are
largely confined to urban, ‘super-specialised’ practice? Close
attention to the AIIMS admission process shows how students
are conditioned to pursue careers they consider most prestigious.
This understanding of prestige is further impressed on students
during their training. The AIIMS outpatient department sees an
average of 7-8,000 people a day. Many of these patients travel
from beyond Delhi, seeking competent and affordable treatment
that they cannot find at home. In this paper I introduce the
concept of ‘patient labour’ to illustrate the phenomenon whereby
students acknowledge a large and diverse patient body as an
educational asset, at an institution that encourages them to be
specialised clinicians unlikely to provide the primary care that
would mitigate some of the conditions for which patients seek
treatment at AIIMS. While a body of literature attends to medical
training in the US in particular (Adams & Kaufmann 2011; Good
& Good 1989; Holmes, Jenks & Stomnington 2011), I position
my work as a contribution to research into the processes and
circumstances of medical education in low and middle income
countries (Wendland 2014), and to their influence and impact on
the politics and power dynamics of national healthcare
landscapes.

“The Fidelity to Checklist”: Training the Body of the
Standardized Patient in Clinical Simulation Ivana Guarrasi,
University of California, San Diego

Standardized patients (SPs) are performers trained to realistically
portray a patient with a disease (medical history, physical
findings and emotional states) in the simulation laboratory of a
medical and nursing school. I examine how the training of the
sentient and perceiving body of the SP allows it to become a
standardized testing tool, in turn producing standards not as
traditionally conceived pre-given ideal categories but as in situ
emerging, embodied, and relational practices. I develop my
argument by analyzing video-recordings of standardized patient
training as well as audio-recorded interviews with standardized
patients and nursing simulation educators. In medical practice the
checklist has become the locus of a tight system of guidelines
and control. According to medical education, it also allows the SP simulation to function as a medical standard by
comprising the institutionally sanctioned standards of student
clinical competence, assessing the student performance during
simulation. In this way, the model of SP trained subjectivity is
not an attempt to allow students to practice the “art of medicine”
with real human beings but in instead if facilitates reliable
measures of the student performance. Since SPs are perceived by
educators as too subjective, unpredictable, even biased, they are
carefully produced and continuously maintained as an objective
tool of instruction and assessment. In my analysis I show that
the model of simulation upheld in the simulation laboratory follows
an epistemic process that I call “the fidelity to checklist.”

“You’ve Had That Training in Your Program”: Genetic
Counselors Making Sense of the Genomic Revolution Susan
Markens, Lehman College, CUNY

Much recent STS scholarship on biomedicine has focused on
genetic science, particularly the production of genetic knowledge
by “experts” in the lab. STS scholars have also examined how
the translation of genetic knowledge into clinical practice is
experienced and negotiated by patients – the end-game “users” of
genetic science. Yet scientists aren’t the only “users” of
genetic medicine and patients aren’t the only “users” of
biomedical knowledge – so too are the health professionals who
take the knowledge into clinical settings and disseminate it. This
paper thus addresses a gap that other scholars have noted
between scholarship on the production of biomedical knowledge
in the lab and scholarship on the application of biomedical
knowledge in the clinic by focusing an analytic lens on the
education and training of one such “expert/user”: genetic
counselors. Drawing on multiple sources of qualitative data,
including interviews with genetic counselors and program
directors, observations of genetic counselors in professional
settings, and textual materials germane to the education of the
genetic counseling profession, this paper analyzes the ways in
which genetic counselors’ education does and does not prepare
them for their primary role of educating patients about
increasingly complex and ambiguous information. The findings
also shed light on how genetic counseling training, in addition to
the experience of genetic counselors as both experts and users of
genetic information, situates a particular “standpoint” regarding
the clinical application of genetic technologies as well as
unearths contradictions, conflicts, and uncertainties regarding
genetic counselors’ roles and responsibilities toward patients in
the age of the genome.

Facing the ‘Negro Problem’ in Healthcare: A Black Political
Critique of Cultural Humility Kenneth Pass, Northwestern
University; Emily Pingel, Emory University

In 1989, the practice of ‘cultural competency’ was introduced to
healthcare professionals and adapted for medical education
curricula. Some health practitioners were concerned, however,
that ‘cultural competency’ represented a narrowly defined skill to
be acquired, rather than an ongoing commitment to learning and
openness. Therefore, ‘cultural humility’ was proposed as a
replacement, through which healthcare efforts might adequately
address rising multiculturalism in the US. Healthcare researchers
and practitioners have emphasized ‘cultural humility’ within their
approaches to eliminating racial health disparities. Yet, despite
the ubiquitous nature of ‘cultural humility’ as a framework in
healthcare training programs, health inequities disadvantaging
Black people in the US persist and gaps in quality and access
grow. This paradox is the point of departure for this paper,
wherein we are interested in recasting critiques of ‘cultural
humility’. We systematically reviewed health and healthcare
scientific literature, academic competency statements at the top
US public health and academic institutions, and literature from
the National Institutes of Health and Centers for Disease Control
and Prevention to explore social scientific and organizational
discourses on ‘cultural humility’ and racial oppression. Framing
our findings using scholarship on medical and scientific racism
and black political thought, we underscore how the terms of freedom—reconstructed vis-à-vis neoliberalism—penetrate the benevolence of ‘cultural humility’ and healthcare writ large. Furthermore, we engage with how the “recognition of humanity and individuality” institutionally embedded within US healthcare research and practice move to preserve and augment antiblackness, which has deleterious effects on the health of black people in the US.

Chairs:
Julia Knopes, Case Western Reserve University
Kelly Underman, University of Illinois at Chicago
Alexandra Vinson

249. Philosophical Interventions into STS Questions
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Kent
Participants:
Living from the Night: Dark Sky Preservation as a Question of Sensibility Einar Engström, Science and Technology Studies, York University
“To posit oneself corporeally is to touch an Earth, but to do so in such a way that the touching finds itself already conditioned by the position,” writes the philosopher Emmanuel Levinas. Dark sky preservation is an environmental movement dedicated to protecting the condition of the night sky. Urging to mitigate light pollution, advocates cite the detrimental effects of artificial lighting on wildlife, human health, energy usage, cultural heritage, and public safety. Meanwhile, accredited dark sky locations serve as traveling destinations and communal resources for promoting astronomy and conducting scientific research. The discourse can thus be understood within the framework of instrumental and intrinsic value: the natural night environment deserves moral consideration because it contributes to cultural or ecological perfectionism. Nonetheless, the dark sky as a representation is preceded by its embedding in the formlessness of the element. Corporeal experience holds that the ethics of dark sky preservation is firstly motivated by sensation and sensibility. Beyond the utilitarian or virtuous protection of non-human entities, dark sky preservation foregrounds the ontological relationship to the night, to the non-visual senses, and to our material dependence on a medium not restricted to the Earth but implying the entire cosmos. Based on fieldwork in dark sky preserves in Canada, this paper turns to Levinas’s philosophy of the night and his concept of living from to consider the dark sky movement as a willful immersion into the “dark background of existence,” here not depersonalizing but affectively constitutive. The move away from the sovereignty of the hyper-technological domicile and towards the submission to the nudity of the nocturnal Earth is a carnal production of the self in a relation of enjoyment—the ground for the scientific and ethical imperative alike.

Provincializing Deep Learning Michael Castelle, University of Chicago
Recent successes in artificial neural networks—specifically, the many-layered “deep” models applied in computer vision, speech recognition, and natural language processing over the last decade—are increasingly accompanied by historico-narratives, which view this research via an ideology of technological progress with global, teleological conclusions. These tales of the heroic decline-and-rise of connectionist methods place the artificial intelligence community as their sovereign subject; but it is also possible to see in these developments an unconscious revival of 20th-century structuralism, especially as propounded by the Russian linguist Roman Jakobson. Influenced by Futurist art and poetry, Jakobson introduced the notion of ‘distinctive (binary) features’ for phonology which would prove influential to anthropologists and semioticians like Lévi-Strauss and Barthes, and also brought an attention to the diachronic, contextual, and metapragmatic aspects of communication and art. He conceived both visual and auditory perception as a hierarchical process of interpreting both successive (syntagmatic) and simultaneous (paradigmatic) features (Jakobson, 1963)—much like the proponents of the Deep Learning field, who claim it allows computers “to learn from experience and understand the world in terms of a hierarchy of concepts” (Goodfellow et. al., 2016).
Specifically, techniques like recurrent neural networks (RNNs), applied to sequential data like text and speech, bring attention to the temporality and dynamism of discourse for a formerly static, syntax-centric linguistics; embedding models like word2vec reinvent a high-dimensional Saussurean structuralism for lexical relationships; and, finally, the détournements of the multi-modal “Creative AI” movement, driven less by an overtly totalitarian conquest of iconicity (e.g., ubiquitous facial recognition and an increasingly convincing speech synthesis), may provide opportunities to explicitly revise these subaltern semiotics currently unknown to industry practitioners.

Categorias Gerais Orientadoras Do Desenvolvimento Nacional A Partir Das Obras Álvaro Vieira Pinto José Ernesto de Fáveri, Fundação Universitária para o Desenvolvimento do Alto Vale do Iaijai; Sandro Luiz Bazzanella, Universidade do Contestado
Este ensaio aborda um conjunto de ideias gerais para orientar o desenvolvimento nacional não xenófobo para emancipar as nações no estágio de subdesenvolvimento que produz a desumanização do ser humano e do ser natural pelas nações mais ricas do mundo. O objetivo desse trabalho é realizar uma análise crítica sobre a contradição entre nações e da realidade nacional desumanizadora para definir ideias gerais que oriente a emancipação das massas oprimidas. A superação do estado de subdesenvolvimento, passa por alguns fundamentos. O ponto de partida, consiste em compreender o conceito de nação e a contradição entre nação rica e as nações pobres. A condição da nação subdesenvolvida encontra-se no homem pobre que manuseia o mundo com a práticas mãos de forma cada vez mais elaborada com a técnica que dispõe naquele momento. O encontro dos interesses nações e de homens na sua realidade produz a ideologia do desenvolvimento nacional. Para superar o subdesenvolvimento e consolidar o desenvolvimento é necessário a produção nacional da própria ciência. A própria ciência produz a teoria da educação para formar a consciência crítica capaz de promover a nação oprimida e a elaboração e execução do projeto de desenvolvimento nacional para emancipar as massas oprimidas e subjugadas aos interesses das nações mais ricas. A solução para essa contradição desumanizadora entre os homens e as nações consiste em criar um grande projeto nacional de emancipação das nações oprimidas de acordo com as categorias mencionadas acima.

Chair: Einar Engström, Science and Technology Studies, York University

250. The Sensibilities of East Asian STS: Strategies, Trajectories, and Visions II
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 5 - Public Garden
STS in East Asia is, in effect, theory from the Global East that has fast come to challenge, supplement, and rearrange theory from the Global North (traditional STS), theory from the Global South, postcolonial theory or subaltern studies from India, or white settler postcolonial theory from the antipodes. The historical antecedents of STS in Asia are undergoing dramatic re-narrations; they have answered contemporary needs to go beyond “methodological nationalism,” which uses zombie categories long after they have become destabilized by national boundary crossings at all scales and levels. The anthropology of STS in Asia requires new methodologies and planning orientations that acknowledge the technological and science that entail profound changes in human-technology-nature investments. STS in Asia manifests in varied configurations from more politicized contexts in the STS communities of Korea, Taiwan, and Japan to more development-oriented dilemmas and moral contests between the common good and individual entrepreneurship
in Asia, along with more integrative anthropological and historical approaches in Singapore, China, and Australia. The mission of this panel is, therefore, to make East Asia STS sensible in terms of trajectories, strategies, and visions. Expanding the critical scope of both earlier policy studies and the history of ideas and the history and philosophy of science, this panel welcomes papers that address new topics, methods, and thoughts derived from this sizeable scholarship with particular awareness that STS has become a growth field, where, as at the 4S, people from different regions and disciplines meet, converse and inspire each other.

Participants:
A Cross between the Pre-Modern and Modern in East Asian Nations: Gajeong Bogam (Household Treasure) in the Early 20th Century Jung-Ok Ha. Seoul National University
This paper examines Gajeong Bogam (家庭寶鑑, Household Treasure), a book highly-valued as a must-read for every household. First appearing in Korea during the colonial period, the book was published in various editions in 1910 and continued to be published through independence from Japan until the 2000s. Gajeong Bogam acquaints the reader with various categories of information including Hangul (the Korean alphabet), basic mathematical operations, diverse letter manuals, traditional ritual processes, shashu (checking one’s dispositions), fortune-telling, choosing special days, diverse taboos, etc.), first aid, geography, and a variety of administrative functions. Although the title ‘household’ suggests the book held a deeper significance for women, Gajeong Bogam was in fact designed for both women and men. In this respect it differs from other household encyclopedias published in Japan and Europe, as well as those household textbooks that were introduced to colonial Joseon from overseas, in that these were clearly targeted at women alone and aimed to extend modern scientific (western) knowledge into the household realm. By contrast, Gajeong Bogam is mainly concerned with shashu, which the Japanese colonial government and the Korean elite categorized as ‘superstition’, and thus in purpose and content the book had much in common with an Iryong Yuseo (日用類書, Daily Encyclopaedia) series published in the late Joseon Dynasty (18th and 19th centuries). From the fact that Gajeong Bogam presented information necessary for daily life and continued to be sold (suggesting great demand for the book amongst the public), it could be inferred that even one’s daily existence began to require a standardized form of knowledge. The knowledge required, however, was not just ‘modern’ but was, more accurately, a cross between pre-modernity and modernity, or between traditional and contemporary knowledge. The book was rigorously designed to meet the needs of contemporary readers; it refrained from orienting them towards ‘modern’ knowledge and from offering ‘traditional’ form of morality. The book also reflects the fact that the operators and managers of daily knowledge and lifestyles had changed in terms of the gender-based division of labor. While the title and some of the content of Gajeong Bogam are a reflection of the books published in China or Japan in the 19th and early 20th centuries, some parts that were published in colonial Joseon were cited in other publications in Japan as late as the late 20th. This suggests that there was an interaction of knowledge between East Asian countries as well as between empires and colonies.

The Modern History of Leprosy: Emergence of a Scientific Entity in Colonial Contexts Yiling Hung, National Chiao Tung University
Although recent studies have illuminated the turn of modern medical science to seeing diseases as specific entities rather than as continuous processes, how this idea of diseases as specific entities correlated to colonial processes is not discussed in enough depth. This paper addresses this important issue by exploring how leprosy became a specific entity through colonial leprologists’ efforts between the 1910s and the 1960s. Data collected from the Wellcome Institute and the Leprosy International in London as well as leprosy journals (in English and in Japanese) revealed that in 1915 British leprologists took the first attempts to treat leprosy with substances expected to have specific effects. In the 1920s and 1930s, leprologists from the main empires tried various treatments in India, China, Taiwan, and Western Africa. These efforts remained unfruitful until the 1940s when diaminodiphenyl sulfone (DDS) was found to be effective. The searches for specific treatments for leprosy also resulted in survey data and clinical materials that became the basis for today’s mainstream medical knowledge of leprosy.

Drawing on recent studies on medical ideas taking shape in colonial settings, I explain how the construction of leprosy as a specific entity facilitates a colonial pathology—an explanation of disease that also provides a frame for understanding otherness. I illustrate how this otherness persists in leprosy medicine in Taiwan, which started to take shape during the Japanese colonial era and crystallized in the postwar years. This paper contributes to STS by illustrating how colonial medical practices facilitated a knowledge system that continues to sustain a depiction of medical relation that was informed by (neo)colonialism.

Comparing East Asia Technoscience: Note on Governing Risk of Multiple Embryo Transfer in Japan, South Korea and Taiwan Chia-Ling Wu, National Taiwan University
This paper argues the importance of comparative studies as a useful angle to reveal the heterogenity and interconnection within East Asia technoscience. The case for elaboration is the analysis on how Japan, South Korea and Taiwan have governed the health risk of multiple embryo transfer during in-vitro fertilization since the 1980s. The regulatory strategies serve as an observable field of intersection between technological innovation and political reform, and therefore illustrative to reveal how newly emergent technology and risk society shape each other. The three East Asian countries have diverse regulatory strategies. Japan started its self-regulation earliest through voluntary registry system and ethical guideline on the number of embryo transferred during in-vitro fertilization, which at least partially leads to lowering risk of multiple pregnancy successfully. By comparison, Taiwan stipulated Human Reproduction Law in 2007, limiting the number of embryo transferred up to 4, one of the most lenient in the world. South Korea has neither developed strong self-regulation as Japan, nor state control as Taiwan. Currently South Korea and Taiwan face serious health risk problems: high percentage of multiple pregnancy and premature birth. I argue that the following factors explain the diverse regulatory trajectories in these three countries: the ways the state, the medical professionals, and the civil society negotiate the risk of multiple pregnancy; the extent to mobilize scientific evidence and expertise to make consensus or settle conflict; the political culture revealed for regulating newly emergent technology; and the reproductive culture, shapes and being re-shaped during the risk governance. This comparative strategy should serve as the starting point to reveal the diversity of East Asia while the boundary of nation state may still matter significantly in the field of regulation, compared with the flow of ideas, expertise, skills, and patients.

Science as Modernity in East Asia Sean H-L LEI, Academia Sinica, Taiwan
This paper intends to achieve two related objectives. First, it elaborates two historiographical challenges for writing the development of medicine and techno-science in modern East Asia. Secondly, this paper turns these two historiographical challenges into a general challenge concerning the issue of “science as modernity” for the field of STS as a whole. In spite of a growing interest in the global spread of traditional East Asian medicine, when scholars of the global history of medicine narrate the modern and contemporary period, they still often unreflectively exclude the history of “traditional” East Asian medicine from their accounts. Against this common historiography, this paper aims to write about the history of “traditional” East Asian medicine as a contributing aspect of the global history of modern medicine? Despite the booming development of the history of science, technology and medicine in the past decade, mainstream historians of modern East Asia have yet to find the history of
Art, Craft, Labor: Countercultures of Computing from an Analog Arts, and the interface of computing and environmental movements. On the one hand, and countercultural resistance to high technology, on the investigations of technology and militarism, cyberculture, the digital and other. The papers proposed in turn make contributions to STS breeders, shown to be mixing old-school methods of propagating, rise of an open source seed movement informed by Linux and the Creative making happening today in Facebook’s Analog Research Lab—understood Apollo mission computers (Daniela Rosner); (2) the 60s-style poster core memory fabrication during the Cold War and, in particular, for the hand wove wires through and around magnetized metal rings as part of investigations a case study informed by interviews, archival research, and participatory collaboration: (1) the electrical seamstresses who crafted and hand wave wires through and around magnetized metal rings as part of core memory fabrication during the Cold War and, in particular, for the Apollo mission computers (Daniela Rosner); (2) the 60s-style poster making happening today in Facebook’s Analog Research Lab—understood as a site of “neo-countercultural aesthetics” that illuminate the firm’s corporate culture and serve to “produce the expressive individualism on which the profitability of social media depends” (Fred Turner); and (3) the rise of open source seed movement informed by Linux and the Creative Commons on the part of both new media bioartists and land-grant plant breeders, shown to be mixing old-school methods of propagating, cultivating, and saving seeds with hacktivism and citizen science. The goal of the session is to ask why and to what extent these modes of artful craft and manual labor have shaped hardware engineering and social media, on the one hand, and countercultural resistance to high technology, on the other. The papers proposed in turn make contributions to STS investigations of technology and militarism, cyberculture, the digital and analog arts, and the interface of computing and environmental movements.

Participants:
Margaret Hamilton and the Core Memory Weavers Daniela Rosner, University of Washington

This paper uses a moment in engineering history to examine craftwork’s intellectual contribution to innovation—how craftwork becomes hardware manufacturing and hardware manufacturing becomes craftwork. During the Cold War, magnetic-core memory was the principal mechanism with which computers stored and retrieved information. The Apollo mission computers stored information in core memory ropes—threaded wires, passed through or around magnetized metal rings. NASA engineers nicknamed this hardware “LOL memory” for the “little old ladies” who carefully wove wires around the electro-magnetic ferrite cores by hand. The code, written by the trailblazing Margaret Hamilton, was made material by a team of master seamstresses outside of Boston. Drawing on traditions of speculative and participatory investigation (Dunne and Raby 2013, Knut et al 2014, Galloway 2015, Haraway 2013), this paper details the development of a collaborative quilt made up of core computing memory “patches.” In workshops across the west coast, the author worked with a team of scholars and artists to re-materialize the work of the core memory weavers. The participants were given “patch kits” comprising a simple metal matrix, beads and conductive threads (in place of ferrite core and wire). By collectively weaving core memory patches, the workshops explored the contributions of embodied, gendered forms of knowledge that allow innovators to imagine new ways of making, remembering and performing engineering histories. Beyond filling gaps in histories of innovation, the project used craft to imagine our relationships to technology afresh, with its intersections of theory and practice, activism and understanding, and intervention and insight.

The Bohemian Factory: Art and Labor inside Facebook Fred Turner, Stanford University

In May, 2012, Wired magazine announced that Facebook had created a “Secret Propaganda Arm” inside the company: its Analog Research Lab. Despite its high-tech name, the Lab is a screen-printing shop. It prints ’60s-style posters with slogans to inspire workers to improve themselves and the firm. This paper asks why. Drawing on published accounts, first-hand visits to the Lab, and interviews with former Facebook employees, the paper first outlines the history of the Lab. It then explores the aesthetics of its products. In both cases, it shows, Facebook managers have carefully configured the Lab as a bottom-up enterprise, an act of artistic expression born of the creativity of Facebook workers. The paper then turns to recent work in the critical sociology of capitalism to explain why. The paper argues that under conditions of rapid technological change and employment insecurity, corporate culture – as distinct from bureaucracy – has become a key mechanism of organizational control. Turning to Facebook’s Annual Reports and other financial documents, it then shows how that internal mechanism mirrors and supports the profit-seeking techniques of the firm as a whole. Both inside and outside the firm, it argues, Facebook has established a culture of individual expression whose creators can be closely surveilled and whose products can be monetized. In this context, it concludes, the Analog Research Lab’s neo-countercultural aesthetics are uniquely suited to helping produce the expressive individualism on which the profitability of social media depends.

Open Source Seeds: Plant Breeding and Bioart vs. Corporate Tech Allison Carruth, UCLA

A hot-button topic today, seed patenting unfolded over a long timeline in the U.S. that runs from the 1930 Plant Protection Act to recent Supreme Court rulings granting the constitutionality of corporate patents on seeds and their genetic traits as analogous to the patenting of hardware and software. Moreover, big data computing is today crucial to the genetic modification of crops and the genetic sequencing of seeds, all of which makes new patents possible while also facilitating the work of environmental scientists and NGOs who seek to redress the conditions and impacts of postindustrial agriculture. Working against the grain of these trends are both scientific and artist communities who view seeds as agents of public experimentation and communal knowledge exchange. This paper shows the points of connection between these unexamined expressions of open source culture, which combine the manual labor of seed propagation and cultivation with crowdsourced citizen science and immersive digital media making. Rethinking the perceived stark conflict between “big ag” and “slow food,” the paper identifies a counterculture taking shape around seeds that is not just opposed to biotech patents but to tech patenting more broadly. The chief illustrations of this counterculture discussed are the Open Source Seed Initiative, the Matsutake Worlds Research Project, and the urban farming prototypes of artist Natalie Jeremijenko—which adopt aesthetic and political techniques to variously unsettle, parody, and reverse engineer the logics of agribusiness.

Craftwork as scientific rhetoric: Examples from DIY bio

Elizabeth Pitts, University of Pittsburgh

Recent research in both science studies and science communication has advocated for increased attention to the materiality of scientific practices, and specifically to the ways in which human craftwork facilitates the emergence of particular nature/culture configurations. However, scholars still tend to approach the symbolic craft of language and the material craft of everyday work as distinct phenomena, implicitly defining communication as “merely” ephemeral. As an alternative to this binary thinking, this presentation introduces a theoretical and methodological framework of technic, or persuasive knowledgeable craft, which focuses analysis on how scientific techniques inscribe meaning into objects and relationships. Drawing on evidence gathered through a 15-month multi-sited ethnography of do-it-yourself biology (DIY bio) laboratories in the United States and Denmark, I apply this framework to show
how various technai of genetic engineering enact different models of communication. For example, in attempting to produce standardized DNA sequences that serve the same function in a variety of organisms, one technique applies a transmission model that assumes the biological "meaning" of DNA, like cybernetic information, will remain the same regardless of context. By contrast, other techniques operationalize a more dialogical model of communication, seeking to engage non-human organisms in a kind of conversation. By demonstrating how material techniques constitute human and non-human relationships in different ways, this project extends conversations about power relations in science communication to consider the rationalities and relational ontologies of the work of science itself.

Back to the Future - 3D Printing and Digital Fabrication Technology in Historical Context

Daniel Southwick, University of Toronto

Advocates of 3D printing have made broad claims about the capacity of the technology to speed up innovation. These claims are dependent upon narratives of "revolution", wherein 3D printing - unlike previous generations of production technologies - is able materialize the thoughts and desires of the user without physical labour. Such claims are problematic as they fail to address the material nature of 3D printing, and more importantly, they also elide the history context of digital fabrication technologies. In this paper, I examine the MIT Numerical Control Project (1949-1970) as an early attempt to radically reshape the production and design process using digital technologies. In the context of the origins of Numerical Control and Computer Aided Design, I argue that these systems are discursively constructed around specific concepts of what is "appropriate" labour for humans and machines. Moreover, I highlight how these concepts of humanistic and machinic labour are byproducts of Cold-War era politics that actively sought to minimize the role of skilled labour in the production and design process. By reconnecting 3D printing within the framework of digital fabrication technology, I illustrate that many of the claims around the technology are, in fact, not novel, and also serve to demonstrate how digital fabrication technologies as a whole alter concepts of labour and expertise.

Chair:
Allison Carruth, UCLA

252. Getting Past Inevitabilist Despair: On Guerilla and Action EthnoEcologies

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 5 - The Fens

Isabelle Stengers has challenged us to think with the matter of catastrophe as our in situ condition of possibility. This open forum asks: how best do we act as scholars when met with insensibilities — the conditions of indifference and incapacitation — that can so easily arise in the face of dire, worldly inevitabilities? Some are finding the means to act, and to think of new ways to act. Those actions — spontaneous, coordinated, interventionist, relational, responsive — are what we seek to contour to the contributions to this forum. Very recent technoscientific and political ecological conditions put our faith in scholarly efficacy at bay. We face such conditions in massive, diverse, distributed and highly destructive human-wrought ecological disruptions: the seemingly unhalting appetite for fossil fuel extraction and distribution and consumption, the proliferation of environmentally toxic effluents, climate disruption at the faltering of photosynthetic carbon sinks, worldwide viral and microbial epidemics, the election of autocratic racial-nationalist leaders, exclusionary extractive-profits at-all-cost governments in erstwhile neoliberal-democratic states. This forum considers what to do with this conundrum, and what kind of projects are appearing on the horizon that defy such inevitabilisms, generating hopeful, sustainable means to act, against the ground of widening catastrophe. Contributing to all of these conditions that lead to such insensibilities, b) the very experience of such incapacitation and suffocation, and c) the lines of flight and triggering to new modes of action and intervention in responding to such conditions and their attendant insensibilities.

Participants:

Intimate Political Ecologies: Crows, Coyotes, Humans, Genomes, Treaty
Brian Noble, Dalhousie University

In this presentation, I seek to lay out an experimental political intervention in collaborative human/natural/technical sciences with non-human collaborators, by way of tracking intimate inter-individual and inter-species relations, at both macro and micro-biotic 'levels'. Crows and Coyotes, like humans, are considered ecological generalists — they can exploit a remarkable range of possible food sources and are often seen in close ecological proximity (intimates) — and all of them leave genomic tracings. As generalists they also display considerable resilience in the face of ecological change (including carbon-depletion Climate change conditions, watershed alteration, surgical land disturbance, microbiological contamination). Many Indigenous peoples in North America also have close ceremonial-political relations with Crows and Coyotes — sometimes described as a treaty relationship with these animals. But Indigenous peoples have also entered into Treaty relationships with other collectives, notably human ones, and including Seltter polities. This form of treaty relations is decidedly decolonial in its form and practice. This is true across Canada for Mi'km'aq, Maliseet, Cree, Anishnaabe, Ojji-Cree, Blackfoot, Dene, Haudenosooone people — all of whom also have close relations with Crows and Coyotes. There is in this, a consummate "treaty ecology", which promises to advance connected worlds of reciprocity, respect, sharing, and responsiveness. I will be seeking input from 4S colleagues, students, action-thinkers on the problems and promise of organizing and facilitating an activist research project to fund, explore and advance such ecologies, one which brings together animal ethnologists, ethnographers, grassroots Indigenous food sovereigns, treaty partners, and metagenomics researchers in a common project to install deeply responsive, sustainable, political ethno-ecologies — as a stay against climate and ecological crisis.

Loose Methods: Emergent Ethical Frameworks for Journalism in the Wake of Protests and New Technologies

Candis Callison, University of British Columbia; Mary Lynn Young, University of British Columbia

In this historical moment where journalists are confronted with a range of social movements and complex reporting challenges from the Dakota Access Pipeline (DAPL) to ongoing slow-motion disasters like climate change, professional journalists’ research methods, ethical obligations, and limitations are increasingly being debated even as new approaches emerge. As such, representing complexity and selecting expertise in areas of contested knowledge constitute ethical decisions whereby we argue that journalists must negotiate double binds and their own situated knowledges in order to shine light on issues of justice and inequality for increasingly global audiences (Tallbear, 2014; Haraway 1988; 1997). As more platforms are developed that give direct voice to citizens with varied perspectives, questions about methods, forms, technologies and practices have begun to proliferate (Gillespie, Bozkowski and Foot, 2014). What truth is, whether it’s singular, what context matters, whose knowledge counts, and how to make sense of what is known and not known are increasingly ‘up for grabs.’ This partiality and multiplicity are emerging amongst the complex interplay of social relations and systems, institutions, colonial histories, and efforts to decolonize the present (Fischer, 2003; Fortun, 2001). That journalists are both purveyors and scapegoats of “post-fact era” claims deserves special attention. This paper will bring together social media analyses and ethnographic research with journalists who have reported on DAPL, Idle No More, and the Canadian Arctic and are adapting professional standards, norms and practices in order to report and facilitate public discourse on high-impact policy, science-related decisions, indigenous claims, and activist events.

“Anxiety in Apocalyptic Times” Finding Hope in Apocalyptic Anxiety

Zachary M Loeb, History & Sociology of Science, University of Toronto
Social, Technological, and Developmental Responses to Mongolian Dzud

Allison Hailey Hahn, City University of New York, Baruch College

This paper explores the ways that Mongolian pastoral-nomadic herders anticipate and respond to the dzud, a winter storm that prevents livestock grazing and often results in large-scale herd deaths. Over the last century, dzud have gone from a once-a-generation storm to an annual occurrence. Increased storm frequency has been met with a plethora of development schemes, which range from developing rural ICT infrastructure to forcing herders to abandon their traditional lifestyles and settle in government-planned cities. How, I ask, have herders and aid organizations collected, distributed, and interpreted data pertaining to the social and scientific effects of the dzud?

Additionally, in what ways have herding community members been included in decisions regarding which technologies and funding schemes should be used in emergency responses? Using documents from Mongolian and American development organizations, alongside my own ethnographic fieldwork, this project evaluates dzud response from 2000-2016. Preliminary findings indicate that Mongolian herders prefer international aid which continues to build the ICT infrastructure, enabling weather reports sent via SMS and allowing herders to call for emergency services. However, many aid organizations argue that herding is no longer a sustainable lifestyle. Because these organizations presume that herders can and should settle, they are reticent to invest in rural and mobile communication networks. By juxtaposing these opposing responses to dzud, this paper explores the ways that herders are expressing both a desire to maintain their traditional lifestyles and a determination to incorporate cellular technologies and development funding to find and preserve herds, pasturelands, and livelihoods. The findings are most immediately impactful on future Mongolian development. As I write this abstract, Mongolia is in the midst of a dzud and policy makers are participating in an annual debate determining both response and future planning. I, following the work of STS and public deliberation scholars, argue that this is a critical moment when traditional and international interlocutors are determining what and how mobile rural peoples will be permitted to express their understandings of the environment and desires for future adaptations. Beyond Mongolia, the findings also speak to larger questions regarding the role of indigenous and mobile people in developing social and scientific responses to climate change.
Performing Science: Experiments in Collective Visualization of Community-led Environmental Sensing: Data Collection and Its visual beauty, and senses of touch, smell and taste all enter into considerations. Involving individuals working on collections housed at Montreal’s Biodiversity Centre, we explore amateurs’ sensibilities to the material and physical arrangements of the collections they are contributing to. In one case, volunteers are working to digitize herbarium sheets. In the other, amateur mycologists collect, identify and classify mushroom species for the Fungarium collection. In comparing these two situations, we highlight several shared characteristics, as well as some notable differences. In both cases, disciplinary contexts and procedures, such as standards for the preparation, presentation and classification of collection specimens, influence daily practices. However, different criteria are foregrounded in each situation – visual beauty, and senses of touch, smell and taste all enter into the evaluation and treatment of specimens, but in different ways for plants and for mushrooms. At the same time, in the context of citizen science, the amateurs’ attachments to their specimens also affect the way they relate to their work on the collections, thus helping rearticulate and reshape practices and protocols. New, informal and local standards emerge as different measuring sticks for plants and for mushrooms. At the same time, in the context of the evaluation and treatment of specimens, but in different ways perspective sheds light on the complex relationships between dimensions of knowledge construction. Its comparative are applied to gauge the value of individual specimens. This helping rearticulate and reshape practices and protocols. New, different criteria are foregrounded in each situation – classification of collection specimens, influence daily practices. However, different criteria are foregrounded in each situation – visual beauty, and senses of touch, smell and taste all enter into the evaluation and treatment of specimens, but in different ways for plants and for mushrooms. At the same time, in the context of citizen science, the amateurs’ attachments to their specimens also affect the way they relate to their work on the collections, thus helping rearticulate and reshape practices and protocols. New, informal and local standards emerge as different measuring sticks are applied to gauge the value of individual specimens. This presentation builds on STS scholarship on the sociomaterial dimensions of knowledge construction. Its comparative perspective sheds light on the complex relationships between epistemological, relational, affective (aesthetic) and practical considerations.

Community-led Environmental Sensing: Data Collection and Its Discontent Maria Michails, Rensselaer Polytechnic Institute Community-led environmental data collection, although encouraged under the guise of citizen science, is often considered suspect when these efforts are to support claims that poor air quality is making residents sick. Furthermore, citizen science is assumed to empower and mobilize community members around environmental justice issues, even though they have had negligible success in influencing expert opinion and decision-making in ameliorating their situation. A review of case studies of the last several decades reveals that, despite this record, communities who engage in citizen science and data collection (often in partnership with non-profit organizations and their expert advisors) present a challenge to regulatory standards that exclude local knowledge in the interpretation of that data, pushing standards and standardized practice to the foreground of debate. This paper begins by tracing the history of air quality data collection by local people and the various low-cost sensing methods used by fence-line communities and where they have succeeded or failed to achieve their desired goals. Building upon this history, the author/artist initiated a community project to build a fleet of rovers made with low-cost electronic components and air quality monitoring sensors mounted on toy trucks and wearables with youth living in Ezra Prentice Homes, an environmental justice community in South End Albany, New York. Using citizen science and critical making as a methodology, the project has an unconventional goal: as a form of radical pedagogy and tactical intervention, the making and deploying of the devices during publicized events and alongside the New York State DEC’s expert monitoring, the aim is to keep pressure on the agency to fulfill their promise of the year-long comprehensive study of air quality in the neighborhood. Recognizing the limitations of low-cost sensors, the objective of our citizen science practice is not to attempt to match data accuracy of the agency's high end monitors (although a web platform will present the data collected), but as a provocation for State accountability and deepened learning about the complex relationship between governance, corporate neighbors, and public health.

Performing Science: Experiments in Collective Visualization of Water Pollution Laura Pervovich, MIT; Sara Wylie, Northeastern University Could field sciences be redesigned around the model of collective witnessing as occurs in laboratory settings? Exploring the possibility of real-time visualization of environmental hazards by exposed communities, this paper reports on experiments developing and testing a method for collectively mapping thermal pollution. Thermal water pollution is produced by many industrial sources, particularly nuclear and conventional power plants that intake water for cooling. The heating of water reduces its oxygen content and effects ecosystem composition. Reduced oxygen can harm fish and amphibians. In water temperature can change organisms’ metabolic rates, hence affecting their feeding behavior and plant growth rates. Using a low cost device developed by the Pervovich, Wylie and Public Lab, called a thermal fishing bob, we have organized experiments where community residents gather to perform and witness a public experiment. A thermal fishing bob is comprised of a thermometer and a light that changes color based on the temperature the thermometer senses. Using long-exposure photography, thermal fishing bobs can be used to create data-rich images of thermal plumes from industrial sources such as power plants. This paper explores how involving communities in the process of the experiment, fishing off a local dock with such a device, and creating a collective experimental process that renders a hazard visible change A) an individual participant’s perceptions of the hazard? B) the efficacy of community advocacy? C) the participant’s understanding of science? D) the ability of communities to represent their own experiences?

Mycoremediation: The Making and Unmaking of a Citizen Science Joanna Steinhardt, UC Santa Barbara In Mycelium Running: How Mushrooms Can Help Save the World (2005), popular mycologist Paul Stamets describes a method for environmental restoration he calls “mycoremediation”—the remediation of toxins through the strategic application of fungi. Stamets described several applications for fungi in the book (e.g., myco-filtration; myco-forestry) but mycoremediation became the most well known. In 2011, a group of SF Bay Area residents formed a group called East Bay Radical Mycology (EBRM) to learn, teach, and collectively implement mycoremediation, “Stamets-style.” Over the next three years, this vision of a heroic, grassroots citizen science — that can heal the earth through human-fungal collaboration — was replaced by disillusionment and doubt. Members shifted their focus to other projects, including less dazzling citizen science projects like myco-forestry experiments in East Bay Regional Parks. Still, mycoremediation remains an inspiring longterm goal for some members. In this presentation, I consider the rise and fall of mycoremediation as a “realistic” citizen science. I look at attempts to prepare and enact mycoremediation as recounted by and reflected upon by participants. Their ideas about what citizen science can and should be (I.e., dispersed, accessible) reveal a vision of science that is participatory and biocentric. Drawing on Jamie Lorimer’s work, mycoremediation illustrates the tension that can emerge in citizen science between its affective and imaginative force and the satisfaction and social recognition of its practical mastery that might remain out of reach. Situated at the boundaries between amateur, speculative, and professional science, mycoremediation sheds light on these multiple, sometimes competing modes of scientific practice.

Chairs: Carsten Østerlund Gabriel Mugar, Engagement Lab at Emerson College Discussant: Alan Irwin, Copenhagen Business School

256. Crime, Discipline and Punishment
Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Beacon B
Participants:

Beyond Micro-Penalties: Incentives and the Completion of the Disciplinary Society Framework Harmeeet Sawhney, Indiana University

The disciplinary society framework advanced by Foucault and others has for long shaped research on information technology and society. This framework has focused our attention on the subtle ways in which the disciplinary techniques work in our society. In the scholarship informed by this framework incentives are scarcely considered as the attention is first and foremost directed at identifying and analyzing "infinitely minute web of panoptic techniques" and "micro economy of a perpetual penalty." In the rare occasions, when incentives are considered the reference point remains the penalties. Often they are seen as indulgences that can be cashed to buy off incurred penalties.

This paper argues that we need to go beyond penalties and consider the incentives independently. Such a move allows an examination of the possibility that humans often willingly submit to the disciplinary society in lieu of gratifications, as opposed to being conditioned into it. It uses the example of the research on apps to show how this move would usefully supplement the existing research, which has focused on panoptic techniques. It points to the need for examination of the possibility that what holds the disciplinary society together is not just disciplines but also human complicity.

The Crime Scene Of Technology: Technical Felonies in the New York Subway Metrocard Noah McClain, Illinois Institute of Technology

One feature of the black boxing of technology is that users command systems and devices without engaging with, understanding, or even being aware of the details which lie beneath their literal and figurative surfaces. What happens, however, when people’s actions become interpreted as criminal when framed through those granular details “in the black box” which users cannot (or do not) engage? This paper explores just such a case, in which a high state court affirmed more than ten thousand arrests of African-American and Latino men by interpreting their actions through the details of a theretofore-secret technology. In the late 1990’s, users of the New York Subway discovered that a fully-spent, valueless “metrocard” (a magnetic farecard) could be physically bent and used in a highly specific way at a subway turnstile to yield one free entry. The newest electronic monitors also perform regular blood testing automatically, surveying the offender in ways that the corrections or parole officer cannot. This paper examines the sociotechnical imaginary that underwrites these recent developments in corrections, interrogating the idea that there can be a technological solution for a problem as complicated and institutionally racist as the American prison system. By bringing the concept of the sociotechnical imaginary to bear on the prison (broadly conceived), I argue, first, that corrections should be understood (at least in part) as an STS problem and, second, that we can best understand the prison-industrial complex by exploring its fantasies about technosocial futures.

Rikers Island Jails as Technoscientific Test Sites for Carceral Imaginaries Ariel Ludwig, Department of History, Virginia Tech

The New York City (NYC) jails (Rikers Island) are primarily located on an island in the East River between Queens and the Bronx. The NYC jail system is the second largest in the United States, with “over 67,000 admissions and an average daily inmate population of approximately 10,240 individuals.” Rikers Island began as a landfill in 1884, and transitioned from a farm to a carceral complex in 1935, justified by euphemisms of geographically ensured safety and behavioral reform through manual labor. This paper posits Rikers as a technoscientific test site for certain kinds of carceral imaginaries. It highlights the ways in which Western, colonial imaginaries are written onto the inmate body through modes of biocriminalization. This is approached primarily through the lens of new materialism - a field attendant to the sociomaterial aspects of carceral imaginaries and criminalized embodiment. Thus, just as islanders are inscribed as biologically isolated and primitive, incarceration culs inmates from the social fabric, generating the grounds for their Otherness and eventual reformation as neoliberal subjects. This paper incorporates empirical findings demonstrating the ways in which inmates are transmuted into primitive Others through correctional intake processes. It is through this transformative process that specific knowledges are generated and reinforced. In sum, this presentation arises from my ethnographic work on Rikers Island from which the embodied inmate comes to serve as an island imaginary and the relationship between this geographic form and those that inhabit it gives rise to specific social, cultural, medical, and correctional island knowledges.

Chair: Ariel Ludwig, Department of History, Virginia Tech

257. What is a Health System? Postcolonial Sensibilities and Health Systems as Objects of Inquiry and Critique

Traditional (Closed) Panel

9:00 to 10:30 am
Sheraton Boston: Floor 3 - Beacon D

What is a health system? How do we locate, bound, identify, and study it? In what sorts of practices, infrastructures, policies, and economies does it adhere? Much work in STS and related fields has taken the health system in the American sociotechnical imaginary to understand recent developments in the American prison-industrial complex. It analyzes private-prison literature on biometric "electronic monitoring”: to the stakeholders of private prisons, these devices embody a "technological fix" to the problems of mass incarceration. From the perspective of the private prison, these ankle monitors help to thin the overcrowded dormitories of prisons. They also cut costs by turning the offender's home into his or her cell; a monitored offender pays for his or her own electricity, water, and meals. The newest electronic monitors also perform regular blood testing automatically, surveying the offender in ways that the corrections or parole officer cannot. This paper examines the sociotechnical imaginary that underwrites these recent developments in corrections, interrogating the idea that there can be a technological solution for a problem as complicated and institutionally racist as the American prison system. By bringing the concept of the sociotechnical imaginary to bear on the prison (broadly conceived), I argue, first, that corrections should be understood (at least in part) as an STS problem and, second, that we can best understand the prison-industrial complex by exploring its fantasies about technosocial futures.
as an object of study and critique. A powerful actor’s category for representing and organizing service delivery, attention to health systems often also contextualizes and critical examinations of global health. Not only material infrastructures, bureaucratic designations, and networks for distribution, health systems are also colonial artefacts and “contact zones” (Anderson 2014), working to distribute and produce power and difference in the present. Yet while recent anthropological and STS attention has productively explored infrastructures as sites of critical world-making and analysis, less attention has been paid to the work of systems thinking for practitioners, patients, scholars and critics. This panel draws from postcolonial STS approaches to explore the work that systems-thinking explores the uneven political and therapeutic registries in which health produces value exist within and alongside the system? What critical sensibilities do discourses of “the system” facilitate or foreclose?

**Participants:**

Peripheral critiques, or where is the system? Health systems, urban relations, and trajectories of care *Ramah McKay, University of Pennsylvania*

Critical accounts of NGOs in Mozambique have described how transnational investments in global health are not only extend medical resources but also complicate the ‘struggle for a public sector’ (Pfeiffer 2014), creating patchwork, uneven, and unequal distributions of resources. Partly in response to such critiques, many transnational organizations seek to embed interventions within the National Health Service, delivering care through public spaces. Yet in a context of colonial cities and health systems built to serve urban elites rather than national publics, such critical responses seek to strengthen the system as a normative construct while doing little to address the health challenges faced by young urban residents in new and peripheral neighborhoods. This paper suggests that attention to colonial spatiality and urban development, as well as to the ways in which care is delivered and access through gendered social relations, can help to historicize and nuance critical perspectives on global health.

**Relational infrastructures: notes on service delivery from the periphery *Alice Street, University of Edinburgh***

Anthropologists and STS scholars study the social at the scale of the relation. This paper asks what kinds of relationships the health system as a site of inquiry make visible or conceal. In Papua New Guinea, a growing focus by international organizations, government officials and social scientists on health systems strengthening has revealed a multitude of challenges, including a lack of rural supervision, an erratic medical supply system, and an untrustworthy health information system. Yet the vantage point from which the landscape of health system failure is painted is always that of the provincial or national centre that is unable to reach the remote populations on the hazy horizon. What, this paper asks, does the health system look like from the periphery? Drawing on historical and ethnographic material from rural health facilities in Madang Province, Papua New Guinea, it examines the local relationships and exchanges involved in keeping a rural health facility open with little support from centralized state or para-state organisations. The connective relationships between centre and periphery that feature in formal accounts of the health system, I argue, are dependent on less routinized, affective relationships between facilities and the communities they serve. When the same people that medical equipment is meant to aid are expected to carry that equipment to the health facility that serves them, the metaphor of the ‘system’ may not suffice. I propose ‘relational infrastructure’ as an alternative metaphor that brings the contingent, historical relationships on which service delivery depends to the fore.

**Interrogating Presence and Absence in South Africa’s Cervical Cancer Crisis *Marissa Mika, University College London***

On any given day, it is estimated that 20 women die of cervical cancer in South Africa. It is the most common cause of cancer mortality for South African women. It is also preventable, treatable, and fundamentally synergistic with HIV infection. Yet, the places where South Africans can access life sustaining antiretroviral therapy rarely offer cancer screening for common HIV related malignancies. Why isn’t cervical cancer screening and treatment deeply embedded in antiretroviral treatment programs? The relationship between infrastructures and HPV as STD is part of the answer, but it is not sufficient to explain this extreme fragmentation. Apartheid era health systems, which were highly segmented and organized along racial lines entrenched inequalities. Global health regimes, which prioritize pharmaceutical technological fixes over robust investments in public health systems, also shape the context. This paper incorporates methods from STS, African history, and critical medical anthropology. I focus on the presence, absence, and distribution of a biomedical objects embedded in cervical cancer care as a way to bring longstanding “follow the object(s)” methods in STS to critical studies of health systems. I situate the contemporary presence and absence of cervical cancer screening practices and technologies within the broader history of race, gender, and inequality in South Africa. I trace where how and why speculums, smears, labs, and hysterectomies were available or not across this landscape and how it changed after the end of apartheid. Why there isn’t a speculum at every HIV clinic for cervical cancer screening cannot be separated from this longer history of systemic fragmentation.

**Haitian Researchers and the Production of Authoritative Knowledge *Pierre Minn, Université de Montréal***

In the realms of transnational humanitarianism and global health, Haitians are most often been cast as patients to be cared for and a population to treated. However, recent initiatives to build and support Haitian health systems (in particular the government of Haiti’s public health system) have emphasized the training and retention of Haitian clinicians. In their roles as clinicians, Haitian physicians and nurses are increasingly called upon to participate in research projects. These projects range from epidemic disease surveillance to operations research in health establishments. This paper discusses the work of Haitian researchers as they strive to produce authoritative knowledge. Based on ethnographic field research in Haitian clinical and training sites and experiences teaching Haitian clinicians qualitative research methods over the past five years, I examine how Haitian researchers strive not onaly to produce authoritative knowledge about their health system, but also strive to reconcile this knowledge with other forms of discourse, such as embodied experiences and widespread scepticism of institutionalised data. In mobilizing research as an opportunity for denunciation, many Haitian researchers tend to frame their inquiries in what they identify as dysfunctional systems apparently caused by morally bankrupt authorities, while acknowledging that any knowledge they do produce is limited by the fundamental unknowability of these systems.

**Chair:** *Ramah McKay, University of Pennsylvania*

**Discussants:**

*Omar Al-Dewachi, American University of Beirut*

*Bharat Jayram Venkat, University of Oregon*

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**258. Contested Meatspace(s): Cultured Meat, Cellular Agriculture and the Futures of Foods**

**Traditional (Closed) Panel**

10:00 to 10:30 am

**Sheraton Boston: Floor 3 - Beacon E**

In 2013, a Dutch physiologist unveiled the first hamburger grown through cell culture techniques. This international media event created great interest in “cultured meat” and other “cellular agriculture” technologies (including “cultured milk” and “cultured egg whites”), presented as “foods of the future”. Against a backdrop of climate change and the pressing need for sustainable alternatives to industrial animal agriculture, the event also renewed interest in other protein alternatives, including plant-derived meats.
and insects. Promoted by entrepreneurs, scientists and other actors, these foods combine biotechnological and technological innovation, including tissue engineering and synthetic biology, with powerful moral claims. We are told that cellular agriculture could save us from a wide range of crises, ranging from climate change, to animal welfare, to human malnutrition. In this panel we will use the tools of Science and Technology Studies to examine these novel foodstuffs that seek to use laboratory technique to replace animals and their farmers in livestock production; we will also examine the social, cultural and economic systems, out of which these foods emerge. Papers may focus on any of a variety of topics, ranging from the role of stem cells (drawing from the growing literature on stem cells from anthropological and STS studies of medicine), to the way “cultured meat” has enabled the re-imagining of human-animal relations, to the way foods of the future might change how we understand “edibility formation,” or the criteria by which humans define things as worthy “food.”

Participants:

Bioprinted in vitro meat: The biomaterial reconfigurations of cellular agriculture Elisabeth Abergel, Université du Québec à Montréal

Often promoted as the future of medical innovation, stem cells are also valuable for the production of “meat without animals” or “disembodied meat” (TCA, 2003). In vitro meat production is a radical technoscientific solution aimed at addressing the ecological and ethical issues surrounding intensive animal agriculture using stem cells from domestic animals. Recent medical advances in biomedicine have made possible the production of skeletal muscle tissue from the use of a few stem cells. This technology, first developed for human tissue transplant, creates the potential for the laboratory production of animal protein for the food industry. Coupled with innovations in biofabrication or 3D bioprinting, meat assembly on a larger scale is within reach, signalling the potential for “on demand” printable meat with personalized nutritional properties. Still existing at the experimental stage, the development and investments in in vitro meat raise questions about the ontological status of consumable flesh; it creates tissue with therapeutic qualities. For the promoters of this technology, the combination of regenerative medicine and 3D printing represents “an economic and compassionate solution to a global problem” (Fogacs, 2015). While in vitro meat production discusses the inhumane practices of the meat industry, its promoters fail to question the domination systems that define human-animal relationships and the various techniques used to denature the bodies of living organisms. This paper discusses in vitro meat not as the negation of the industrial model of animal production but as the final steps towards its total industrialization and material transformation (Porcher 2010).


In the last decade, waves of venture capital have flooded the coffers of upstart food technologists in North America and Europe, each looking to break into mainstream markets with an affordable “functional meat” made from non-animal sources. Some have staked their fortunes on lab-based cellular colonies fashioned into second-level products like meatballs, while others have turned to the catalogue of existing plant by-products to assemble patties that drip, sizzle and ‘bleed’ – a trick conjured with beet-derived hemoglobin, the same protein that gives animal meat its red colour and iron taste. Yet this current rush to foster a post-meat culinary moment is just the latest flourishing in an ongoing international project to develop non-animal protein that stretches back to the postwar period. Drawing on the insights of STS scholarship, this paper offers an historical overview of the attempts to wean westerners’ off their meat-heavy diets, probing the economic, medical and cultural thought that made such a project desirable in a period of relative prosperity. This paper also interrogates the science of post-meat production itself, showing how technologists gathered knowledges from the realms of physics, psychology and taste research, and funding from military and corporate contracts, to aggregate a laboratory science of food texture – an endeavour that cannot be separated from the goal of developing mock meat. Finally, this paper considers the failures of major food processors to find mass markets for their products in the 1970s, a point texture scientists themselves were acutely aware of, and which offers lessons about the limits imposed on post-mort products by public notions of edibility, themselves informed by taste, texture, and the gendered aesthetics of animal slaughter.

Mimesis and Invention in the Cultured Meat Debates Benjamin Aldes Wurgaff, MIT

This paper examines a curious form of contemporary food biotechnology, namely animal muscle that is produced through tissue culture techniques and intended for consumption as meat. Called ‘cultured meat’ by its proponents, this substance has had many hopes and aspirations heaped upon it; the notion of meat without livestock, and thus without the ethical and environmental problems produced by industrial animal agriculture, has attracted activists, journalists and investors. Formal research into using tissue culture and engineering techniques to produce meat has been underway since the early 2000s. However, after a decade of experiments, it is still far from clear if this avenue of research will produce a viable meat product at scale – and it is unclear just what physical form cultured meat will ultimately take. This paper begins with a debate within the cultured meat community, over whether the correct approach is to copy existing types of meat favored by consumers, or to invent novel forms of meat. Call this ‘mimesis or invention,’ the imitation of nature or the effort to imagine animal protein in shapes we’ve never seen before. But what the mimesis debate circumvents, is the uncomfortable truth that copying meat is incredibly difficult from a technical standpoint. Indeed, it is far beyond the means of contemporary tissue engineering techniques. Cultured meat research reveals how little food scientists understand about how meat ‘works’ as a food – how animal muscle, converted into cuts via butchery, produces flavor sensations as well as responses to texture, to say nothing of meat’s various nutritive properties. Drawing both from my several years of ethnographic research within the cultured meat movement, and from interviews with meat scientists and flavor chemists, this paper seeks to illuminate the relationship between mch-ballyhood ‘foods of the future,’ and the state of food science itself. In the process, it examines a theoretical question broached by the intellectual historian Hans Blumenberg, in an essay of 1957: why are we moderns vexed, by the question of whether or our technologies imitate natural processes, or are utterly de novo? In other words, the mimesis debate in cultured meat circles, is simultaneously about how practitioners understand the current state-of-the-art in tissue engineering, and about a set of basically metaphysical questions. Thus this paper joins the analytic techniques of STS scholarship, with the materials and questions of European intellectual history, including not only Blumenberg, but also Erich Auerbach’s foundational work on the problematic of mimesis.

Chair: Benjamin Aldes Wurgaff, MIT

Discussant: Neil Stephens, Brunel University London

259. The Life of Organizations: Vitalism, Organism, and Mechanism

Traditional (Closed) Panel

9:00 to 10:30 am

Sheraton Boston: Floor 3 - Beacon F

Modern organizations have been accused of being excessively mechanistic beings. Developed at first in regard to industrial organizations, the bulk of this critique targeted the role of production machines in the de-humanization of work processes. But the critique was also extended to the role of management processes and technologies in fostering “machine organizations”, operated as mechanical systems, well beyond the industrial sphere, to include all kinds of corporate, governmental and non-governmental organizations. This panel proposes to explore the flip-side of this critique, i.e. the underlying assumption that production and
management machines hindered, harmed, or destroyed the otherwise free-flowing “life” of organizations. This vitalism appears with particular clarity in philosophical, sociological and managerial discourses proposing alternative forms of organizing, that would rather foster the life of organizations—the individual life of organizational members, but also the “social life” of the organization as a collective. The papers in the session discuss this opposition between mechanism and vitalism, with a specific focus on how the latter is defined, on its different forms and historical origins. They consider, more or less chronologically, different instances of this organizational vitalism across the twentieth century, by looking at the “demons” in Jack Morton’s Organizing for Innovation, at Andre Leroi-Gourhan’s Bergsonian conception of “programs”, at the “spiritualism” in Tarde, Hayek and Polanyi’s economics of production and exchange, at the aspiration of venture capitalist Georges F. Doriot to build new companies as “living organisms”, and at the vitalist underpinnings of Customer Relationship Management systems.

Participants:

Demons at Bell Labs Jimena Canales
At Bell labs, Jack Morton, head of the electronic division, was celebrated for managing a laboratory that produced some of the most important technological innovations of the century, including the transistor. Morton saw his role as corporate manager in terms of Maxwell’s demon. In Organizing for Innovation (1971), a book that became a bible for success in business, he explained his approach at running the corporation as one that “emphasizes the ‘master ecologist’ or ‘Maxwell Demon’ role of the manager.” This talk will explore the role of demons in physics, electronics and information theory and their impact in corporate management and the organization of R&D.

Intangible Economics Vincent Legoueix, Sciences Po
In this paper, I revisit a stream of twentieth century economic thought that has long been neglected by historians of economics. This stream I call spiritual economics and I show how it has animated an under-current of the mainstream debates between neo-classical and marxist economists. In contrast with these two schools, spiritual economists insist that the economy is not a domain or a field but rather a potential. We situate the ups and downs of spiritual economics in the context of the fight against regulations since the Second World War. Not unlike negative theology, spiritual economics has defined the root of economic activities by its absence, against regulators’ attempts to organize it.

Vitalist Venturing Martin Giraudeau, London School of Economics
Georges F. Doriot was a Harvard Business School professor from the 1920s onwards and, from 1946 to 1973, the managing director of American Research and Development Corporation (ARD), generally considered as the first public venture capital company. The paper explores Doriot’s conception of entrepreneurship through archives of both his teaching and his work at ARD. It documents Doriot’s radical critique against all types of management systems, and extreme caution in the use of performance and valuation metrics in assessing the potential of new business proposal. It explores, symmetrically, the forms and origins of the Doriot’s emphasis, in his courses and memos to his employees, on developing projects as “living organisms”, through the cultivation of “feelings” for the projects and the entrepreneurs who carry them: “The analysis cannot be an autopsy but it must be a living idea”. The history of work practices at ARD, and especially the reliance on the entrepreneurial technology of the business plan, however highlights the tensions in Doriot’s vitalism. The paper indeed concludes on Doriot’s final scream, at the moment of selling ARD in 1973: “a computer could do the job!”

Calculated Vitalism Zsuzsanna Vargha, University of Leicester
The living social and economic body has often been referenced in social theory and in business imaginary critical of rationalization by “cold” calculation. This is seemingly confirmed in the domain of expertise regarding consumers—the business discipline of marketing, where thinking has been imbued with theories of the masses on the one hand and of universal, individual psychological behavior on the other, well into the post-war period. With the rise of the Relationship Marketing movement, however, marketing theory experienced what many describe as a paradigm shift. Positioned against the reigning philosophy of transactional or mass marketing, the movement emerged in the 1980s and argued that long-term relationships with Maxwell’s demon customers should be cultivated as the ultimate source of economic value for the firm. But relationship-building in mass consumer markets was very quickly envisaged as taking place through information systems. Thus, while we see the resurgence of a certain vitalism in relationship marketing, this is not cast against the “cold” and lifeless calculation of human work by machines. That construct plays itself out on another terrain, vis-à-vis mass marketing, so that short-lived alienated encounters in market transactions with strangers are criticized. At the same time, the cultivation of personalized relationships is acknowledged to be a mass-calculated exercise for which large-scale infrastructures must be enrolled. The paper discusses these seemingly paradoxical aspects of vitalism in marketing through a historical and ethnographic view of Customer Relationship Management systems.

Chair: Martin Giraudeau, London School of Economics
Discussant: Lukas Rieppel

260. Detecting Autism: Medicalization and Diagnosis
Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Beacon G
Over the past twenty years, public awareness of Autism Spectrum Disorder (ASD) has grown alongside increasing rates of diagnosis. Work by social scientists has demonstrated how various social and professional groups employ different epistemologies and ontologies of ASD when they explain the causes, treatments, identities, and social consequences of this condition. Epistemologies of ASD are located in practices of knowledge making from genetics and neuroscience to diagnostic tools and treatments. Our understanding of autism also comprises alternative ways of knowing that have often been excluded from dominant accounts of autism, including the concept of neurodiversity and other sensibilities that comprise local forms of knowledge. This open panel aims to bring together STS scholars investigating different epistemologies or ontologies of ASD, to identify and articulate how STS has grasped and responded to this growing social phenomenon, and to address the limits of our analyses thus far. We seek papers exploring the tensions between dominant frameworks of ASD and sensibilities that are less known, imagined, or considered in current STS accounts. These sensibilities could include but are not limited to: implicated actors in autism whose voices are often left out or only discursively present across situations; gendered dimensions of autism diagnosis, treatment, or care; global and/or cross-cultural perspectives; relationships between human and nonhuman animals in autism science; and others. The panel will explore the sensibilities at play in perceptions and experiences of autism and aim to inspire new directions in STS research on autism and related categories of disability and difference.

Participants:

Abstraction and Forms of Knowledge in the Diagnosis of Autism Spectrum Disorder Doug Maynard, University of Wisconsin; Jason Turweszt, University of Siegen, Germany
In studying the testing and diagnosis of ASD, we have found it to be a narrative endeavor on the part of clinicians and others. Two types of stories about children’s performances are told within the diagnostic narrative. One is the “tendency” story, which reports on “multiples” and/or measurements of a child’s behavior. For example, “Ronnie has age-level skills, but when he has to take those skills and apply them, he falls down.” The other type is an “instantiation” story, which is about a certain occurrence of some behavior, such as when Ronnie took a lesson very literally and applied the lesson inappropriately. Both types of stories lend to upshots—“he doesn’t have the generalization skills,” and “he is very literal.” That is, they provide evidence for general traits of
the child and, ultimately, diagnosis, which itself may be formed as a tendency story. "Ronnie has many of the signs that we call autism." Our focus in this paper is on the asymmetry between story types, and on the kinds of knowledge these story types represent. Tendency stories, at 80%, predominate in the diagnostic process, and instantiation stories, at 20%, are much fewer. The story types represent two different forms of abstractive knowledge. "Kanner has many of the signs that we call autism." Our focus in this paper is on the asymmetry between story types, and on the kinds of knowledge these story types represent. Tendency stories, at 80%, predominate in the diagnostic process, and instantiation stories, at 20%, are much fewer. The story types represent two different forms of abstractive knowledge, and their interrelations, to which the pioneers were respectively devoted when diagnosing and developing ways of treating the condition. These forms of knowledge are still present, and it is worth considering what their proper balance should be. Drawing on a variety of STS lab ethnographies, we see this work as contributing not only to epistemologies regarding ASD, but also to the sociology of testing and the sociology of diagnosis. The data, comprising interviews, observations, and video recordings, are from a multi-decade and multi-year study in clinics for autism diagnosis.

**Brain Scanning for Autism**

Des Fitzgerald, Cardiff University

In February 2017, a group of researchers made international headlines with a paper in Nature that seemed to show how a brain-imaging technique, allied to a machine-learning algorithm, could infants at risk of autism at an early stage. This research offered the hope, according to the BBC, that autism may become detectable, using a brain scan, before symptoms appear. With such early diagnosis, a researcher told the Guardian, scientists could start developing interventions to prevent these children from falling behind in social and communication skills. In some ways, this paper is only the latest instance in a long-standing cultural phenomenon – which is the fascination with the (still elusive) possibility of a brain-based marker of autism. If that fascination seems superficially understandable, it sits awkwardly against both the scientific complexities of brain-imaging (which is a much more uncertain and fragile practice than it is often imagined to be) and the cultural and political complexities of living with autism (which is not everywhere understood as a problem in need of intervention). In this paper, I will review the current controversies and difficulties that psychiatry/medicine has with sensing autism in older adults, including issues of accounting for adaptive behaviors, unknowable developmental trajectories as children, and comorbid or secondary diagnoses such as depression, anxiety, personality disorders. I will then compare these narratives of sensing autism and sensitivity of measurement with the experiences of my participants, drawing mostly from interviews conducted with adults over the age of 40 who were diagnosed autistic at 40 or older, as well some ethnographic work in mixed-age adult autistic community spaces. In these narratives of the adult diagnostic process, my participants encounter the insensitivity of the diagnosticians and their measurements and the dismissal of sensory issues as a core feature of their autism. Autism among adults in mid to late adulthood remains a problem of sensation and perception, both as clinical and embodied features of the autistic experience, and as problems of measurement and diagnosis on the part of psychiatric authorities.

**Scientific Hegemony and the Production of Causal Knowledge of Autism**

Claire Decoteau, Meghan Daniel, University of Illinois at Chicago

This paper analyzes how genetics became (and remains) the hegemonic theory of autism causation despite the fact that research into genetic biomarkers for autism has not proved fruitful and many parent groups reject genetic causal explanations. Drawing on archival data collected from the National Institutes of Health, the Interagency Autism Coordinating Committee, the Omnibus Autism Proceedings and the Lancet, we argue that a conjuncture of events served to establish an orthodox explanation for autism, amongst the biomedical mainstream, by the late 1990s, which served to focus federal spending on genetic explanations for the disorder. Hegemony faltered in the late 2000s because biomarkers were not identified and the field became more contested by parents insisting on environmental factors (including but not limited to vaccines). As a result, scientific and biomedical authorities causally subsumed environmental explanations into the gene via the turn toward genomic and epigenetic research, thus rendering the particular causal explanations of autism differently sensible. Such a move gives rhetorical space to environmental and social explanations without providing them any substantive causal weight, a discursive turn that renders particular autism knowledge and causal explanations (im)possible. The paper explores how this process played out and its implications for contemporary (in)sensibilities in science and medicine.

**De-Regulating Disorder: On the Rise of the ‘Spectrum’ as a Neoliberal Metric of Human Value**

Anne McGuire, University of Toronto

This talk examines the cultural effects of the spectrum as an increasingly popular way of classifying behavioural, mental and emotional states. The past decades have witnessed shifts in the conceptualization of psychiatric diagnostic criteria. Disorders, such as autism, that were once understood as singular pathologies are increasingly re-configured as ‘spectral’ pathological ranges. This rise of spectral thinking is evident in the most recent revisions to the Diagnostic and Statistical Manual of Mental Disorders. DSM-5 marks the beginning of psychiatry’s migration away from strict categorical approaches to diagnosis, where disorder is either present or absent, and towards dimensional approaches, where disorder is measured by degree. These shifts have generated debate within the field of psychiatry (and beyond), centering on the apparent disappearance of ‘normal’. Attending to the the DSM-5’s new severity scales - and drawing on the specific example of its ASD metric - I argue that conceptions of mental normalcy are not so much disappearing, as they are being reconfigured and put to use in new ways. I propose that spectral adjustments to psychiatric diagnostic categories represent a neoliberal deregulation of disorder. That is to say, the blurring of categorical boundaries separating normality and disorder is working to stimulate the market, while also grounding the emergence of novel subjectivities and forms of normative surveillance and control.

**Sensing Autism: Diagnosis in Adults in Mid to Late Adulthood**

Kate Jenkins

Extrapolating from historic diagnostic rates, current diagnostic rates, and evidence that autism was significantly underdiagnosed as knowledge about the diagnosis emerged over time, I estimate that there are up to 8 million adults over the age of 45 who meet the current criteria for diagnosis but who were not diagnosed as children. Some of those are now seeking a diagnosis of autism, yet the issue of adult diagnosis remains contested, especially for adults over 65. In this paper, I will review the current controversies and difficulties that psychiatry/medicine has with sensing autism in older adults, including issues of accounting for adaptive behaviors, unknowable developmental trajectories as children, and comorbid or secondary diagnoses such as depression, anxiety, personality disorders. I will then compare these narratives of sensing autism and sensitivity of measurement with the experiences of my participants, drawing mostly from interviews conducted with adults over the age of 40 who were diagnosed autistic at 40 or older, as well some ethnographic work in mixed-age adult autistic community spaces. In these narratives of the adult diagnostic process, my participants encounter the insensitivity of the diagnosticians and their measurements and the dismissal of sensory issues as a core feature of their autism. Autism among adults in mid to late adulthood remains a problem of sensation and perception, both as clinical and embodied features of the autistic experience, and as problems of measurement and diagnosis on the part of psychiatric authorities.
The Agenda(s) of Open Science

Participants:

Ranging from early stage reconnaissance to crowdfunding to DIY and rapidly morphed into a project to re-engineer the very process of research. The eventual terminus seems to be a Facebook for science — a mega-platform that undergirds all the individual components, providing the ultimate panopticon of science. This panel invites papers that explore the individual components, as well as the politics, that promote the ultimate marketplace of ideas.

Your Spectrogram Looks Like My Genomic Sequence Data

Science is often defined using images such as Drew Conway’s venn diagram (2013) to signal the kind of work that draws on multiple sets of skills and knowledge traditions. Yet it is simultaneously often framed around the promise of developing a coherent set of generalizable tools and methodologies that can be applied across many fields. How can we characterize the emergent interdisciplinary spaces of data science and what are the key practices of interdisciplinarity in data science? This work is based on an ethnographic study of data science practice and culture in academia, as part of a broader funded initiative to develop data science environments (Moore/Sloan Data Science Environments). For participants in and funders of the data science environments, interdisciplinarity and collaboration are core defining features of what it is to do and advance data science. We draw on Collins, Evans, and Gorman’s trading zone model to identify the locations of interdisciplinarity, or in their words, the trading zones “in which communities with a deep problem of communication manage to communicate.” (2010, p. 8). We find evidence of all four kinds of trading zones proposed in the model across the data science environment, including subversive, fractionated, interlanguage, and enforced (Collins, Evans, & Gorman, 2010). We build from these trading zones to situate the interdisciplinary practices we observe within a broader network of power relationships and culture. Drawing on over two years of participant observation within the data science environments and over 100 interviews with affiliated researchers, we identify key practices of interdisciplinarity that characterize the emergence of data science across our fieldsite. To be sure, these observed practices were not always successful instances of interdisciplinarity. They represent the varied ways in which researchers experience interdisciplinarity in data science. The first is the development of a pidgin language (Galison 1997) around and through data that allows for idea exchange and knowledge production to occur via data both as a result of and in spite of differences in language and culture. For example, for many researchers, a language of data science made the problems across many different fields visible and thinkable in new ways. It should be said that for others, it made these problems inexplicable. The second is the adoption and adaptation of data science methods and approaches developed in one context into another. The third is the development of interactional expertise (Collins and Evans, 2002), or having enough expertise to talk meaningfully about a practical skill or expertise, but without being able to actually practice it (Collins 2004). In our fieldwork, this meant developing the capacity to “think like a data scientist” as a way of bridging knowledge boundaries and enculturating researchers. Fourth is the practice of institution building around data science, in which participants and organizations and those in the broader communities engage around issues that matter for the future of data-intensive science, such as reproducibility, open science, pedagogy, and data science studies or the social, ethical and organizational dimensions of data science. Collins, H. E., Evans, R., & Gorman, M. (2010). Trading zones and interactional expertise: Creating New Kinds of Collaboration (pp. 7-23). The MIT Press. Collins, H. and Evans, R. (2002) The Third Wave of Science Studies: Studies of Expertise and Experience. Social Studies of Science 32 (2): 235 – 296. Collins, H. (2004) Interactional Expertise as a third kind of knowledge. Phenomenology and the Cognitive Sciences 3: 125. doi:10.1023/B:PHEN.0000040824.89221.1a Conway, D. (2013) The Data Science Venn Diagram. http://drewconway.com/zia/2013/3/26/the-data-science-venn-diagram Galison, P. (1997) Image & logic: A material culture of microphysics. Chicago: The University of Chicago Press. Moore/Sloan Data Science Environments, http://msdse.org/environments/

What is OpenScience Supposed to Fix?

Philip Mirowski, University of Notre Dame

Open science has become a veritable movement; but few understand its proponents or their agenda. After a brief introduction to relevant neoliberal doctrine, we ask if the envisioned ‘openness’ could actually remedy any malady of science the proponents decry: ¥ science distrust ¥ a democratic deficit in science ¥ productivity slowdown ¥ rise of retractions / failure of replication We conclude by arguing none are the main objective of open science internet platforms, that instead seek to reorganize the entire research process in a more commodified and Taylorized manner. The real objective is a "Facebook of Science".

Broken Science? You Only Need Post-Publication Peer Review to Fix It Didier Torny, CSI, I3, PSL Research University, CNRS UMR 9217 (France)

As STS scholars and historians of science have repeatedly shown, scientific knowledge has been produced, since the 17th century, through a collective process, involving specific technologies used to perform experiments, to regulate modalities for participation of peers or lay people, and to ensure validation of the facts and publication of major results. In such a world, various forms of misconduct – from subtle plagiarism to the entire fabrication of faked data and results – have largely been considered as minimal, if not inexistent. Yet, some “betrayals of the truth” have been alleged in many fraudulent cases at least from the 1980s onward, and the phenomenon is currently a growing concern in many academic corners – scientific journals, funding bodies, learned societies, analysts. For example, the reveal of manipulated publications behind the scenes by the pharmaceutical industry has strengthened the doubts about the reliability of “gold standards” of proof, while the disappointing results of specifically designed studies have led to a replication crisis in some experimental disciplines (psychology, medicine). In this context, post-publication peer review (PPPR) has often been lauded as a solution, its promoters valuing public debate over in-house validation by journals and the judgment of a crowd of peers over the ones of a few selected reviewers. This presentation focuses on one controversial PPPR website, PubPeer, founded in 2012, enabling anonymous comments on published papers, in which peers voice their concerns on a result, a method, or a figure and ask original authors or other commentators to discuss them. We will analyze the values endorsed by founders and commentators, how they defend anonymity (including for libel cases in courts) while asking for transparency in science, how “debunked articles” leading to retractions or corrections are used as proofs for the need of such a web platform. Conversely, we will discuss the criticisms they face: valorising policing over discussion, lack of moderation, lack of transparency, distrust of self-regulation practices of established journals and publishers. We will conclude on the effects of such a brand of open science and how it is itself regulated through technical devices, ethical norms and trials.

Chair: Philip Mirowski, University of Notre Dame
Interactions between democracy, science, and technology run in both directions. From the appearance of the democratic state, the very field of statistics developed in support of evidence-informed policy-making, constitutions and statutory law support intellectual property rights based on the belief that innovation is critical to state capacity, and governments have been involved in the practice of and funding for science and technological innovation. More recently, we have seen the rise of demands for democratic participation in decision-making about the funding of "big science" and the use of research findings, and both citizen scientists and scientist citizens have become important roles. Recent political trends, however, appear to be breaking these relationships. Policy-making is increasingly evidence-averse – or evidence-hostile – with consequences that touch the fundamentals of society and the environment. Shifts in funding and in regulation of science and technology threaten to undermine knowledge production and use. There is again the possibility that taking particular scientific positions may be treated as a political rather than intellectual matter. Already some scientists are declining to cross certain borders because of fear generated by political developments. This panel will look at relationships between democracy, science, and technology as they have been in the past, as they are in the present, and as they may be in the future. Papers dealing with the problem of developing arguments and evidence that will be persuasive in what The Economist described as a "post-truth" environment, hostile to facts and to reason, are particularly encouraged.

Participants:

Rhetoric and Norms in Lay/Expert Dialogue Andrew Feenberg, Simon Fraser University

STS has opened new ways of thinking about the influence of social movements on technological design. Influence depends on effective communication between lay and expert actors, between, in other words, public protest and technical implementation. This paper draws on Aristotle's concept of common topics and Hannah Arendt's appropriation of Kant's theory of determinant and reflective judgment to explain aspects of this relation. Here the basic STS argument is reversed: instead of showing the social dimension of technical rationality, the aim is to show the rationality of the social, as exemplified in social movements that address technology. Technical artifacts and systems are situated in the lifeworld where they are appropriated or suffered by ordinary people. They become objects of explicit normative judgment when they cause problems. These judgments activate similar rational operations and categories that originally presided in the constitution of the technical functionalities. In technosystem struggles rational principles in their original lifeworldly form are re-applied to the technosystem through judgments based on experience, often informed by counter-expertise. The design process is reactivated through interventions based on the operations as they appear in the lifeworld. These vernacular versions of the principles differ from the refined expert versions in being charged with explicit normative content. They support what Foucault called "subjugated knowledge," and can be invoked critically to realize such potentialities as health and justice. Thus rationality can provide a basis not only for technical work but also for normative critique.

Rules and Regulations in Government-Sponsored Research Administration Eriko Fukumoto, Arizona State University

The growth of the government-sponsored research since the World War II has shaped a sort of principal-agent relationship where the universities and researchers need to comply with a set of rules and regulations of government and funding agencies (Guston 2000; Price 1954). With a growing size and complexity of research organizations and activities and administrative burdens for researchers, the federal research grant administration system is one of the science policy challenges. The planned study examines the written rules and regulations of federal research grant administration, including the agency-specific rules and regulations by National Science Foundation (NSF) and National Institutes of Health (NIH), and government-wide rules and regulations by the Office of Management and Budget and legislations. The primary data are guidelines and handbooks of grant administration by NSF and NIH that are released for the universities and researchers, funding agencies’ strategic plans, and a set of related governmental reports such as those by the National Science Board and the Government Accountability Office. The intensive document analysis focus on the numbers, coverage of topics, and specification of ways and levels of compliance with the rules and regulations of research administration of federal research grant for universities and researchers. While Guston (2000) illustrates the development of organizational structures for research integrity and accountability at funding agencies, the plan of this study is to investigate the development of rules and regulations themselves, and how and why these developments have emerged. In so doing, this study suggests insights for understanding the relationship between government and science. References: Guston, D. H. (2000). Between politics and science: Assuring the integrity and productivity of research. New York: Cambridge, U.K.; Cambridge University Press, Price, D. K., & American Council of Learned Societies. (1954). Government and science: Their dynamic relation in american democracy. New York: New York University Press.

“Litigation is our last resort”: The Role of Legal Pluralism in Movements for Indigenous Sovereignty, Environmental Justice, and the Rights of Nature Bindu Panikkar, The University of Vermont; Jonathan Tollefson, University of Vermont

Large project permitting and the discourses surrounding the construction of resource materialities are contentious, and differences are often settled in the court of law. This research investigates the importance of considering legal pluralism in the permitting process of large-scale mines in Alaska. Legal pluralism explores non-state legal orders, informal socio-legal practices, and an adversarial-centered field that deals with the convergence of norms, localities, states, global sites, and practices. We examine the early permitting debates of Pebble Mine, a proposed industrial-scale mine in Bristol Bay, Alaska to understand the contemporary politics of legality, legitimacy and representation within permitting. We emphasize the importance of considering multiple legal representations and alternative models of law during the permitting of industrial-scale developmental initiatives, and how this pluralistic legal system is used to address complex issues of indigenous sovereignty, environmental justice, and the rights of nature. This research is based on interviews with members of industrial, state, federal, civil, legal, and scientific communities and interpretive analysis of administrative, scientific, regulatory, media and public documents. We underscore the ways in which various identities and traditions have decentralized state law and offered non-state legal orders or have settled long-standing debates about the concept of law. This process of decentralizing of legal regimes can shed important light on improving regulatory science and democratic policy making.

Valuing Algae: The Coproduction of Algal Biotechnologies and Sustainable Development Amy Braun, Department of Geography, University of North Carolina at Chapel Hill

This paper examines the coproduction of algal biotechnologies and sustainable development by exploring how marine biosciences are becoming a mechanism for negotiating “triple win” (social, environmental, and economic) sustainability aspirations. Microalgae are caught in a tangled web of political priorities: used for a variety of biotech applications from omega-3 health supplements to military jet fuel, algae are positioned as a promising renewable resource to meet human health, environmental, and security needs. Triple win thinking often assumes that scientific and institutional expertise can resolve conflicts surrounding development priorities. With algal biotech valued by many actors for a range of purposes, this research suggests that scientific practice itself plays a key role in
mediating the different ways that nature and its derivatives are valued within sustainable development. Producing a marketable biotechnology product requires optimizing many steps in the process to maximize value; the contested forms and logics of this optimization – be they economic, environmental, or political – solidify through scientific practice. Using multi-sited institutional ethnography that traces associations between different sites of algal biotech production and governance, this paper examines 1) how algal biotechnology is translated into both sustainability policies and markets, and 2) how policy, market opportunities, and development discourses influence the scope of scientific research on algal products. This research builds on STS work on biocapital and the coproduction of science and politics by investigating the role of science in both defining and realizing sustainability and in shaping imaginaries of sustainable techno-futures.

Land as Material, Habitat and Knowledge: Constructions of Resource Materialities in Bristol Bay, Alaska Bindu Panikkar, The University of Vermont; Jonathan Tollefson, University of Vermont

This research examines the social, historical and political constitution of resource materialities and the contested process through which Bristol Bay has been claimed a resource environment. We examine the early permitting debates of Pebble Mine, a proposed industrial-scale mine in Bristol Bay, Alaska to understand the contemporary politics of defining and constructing dominant and alternative regimes of value by the state and by private, social, and environmental groups. This research is based on 80 in-depth interviews with members of industrial, state, federal, civil, legal, and scientific communities and a thorough interpretive analysis of administrative, scientific, regulatory, media and public documents. We show that the construction of resource materialities are characterized by the operationalization of disparate (but overlapping) knowledge traditions and the production of strategically calculated hybrid discourses, leaving the permitting process as a field of contestation over knowledge and thus of legal consequence. The resilience of the alternative and subsistence land imaginaries and the ontological power of the subsistence worldview are made visible only at the peripheries in the permitting discourses. It is in the careful and strategic navigation of these discursive and strategic boundaries of metonymic and alternate material realities that we can see the work of cognitive justice enacted and the tensions of between knowledge regimes made strikingly clear. This study hopes to shed new light on the importance of considering counter resource material realities within the permitting process, regulatory science, and policymaking.

Chair: Sandra Braman, Texas A&M University

263. Smart yet (in)Sensible? Feminist Critical Perspectives on “Smart Cities” I

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Clarendon

The Smart City is a topic with global importance across diverse sites. Consider recent initiatives such as the White House’s “Smart Cities”, New York’s Sidewalk Labs, or Smart City Barcelona, all vying to define the city as a magical frontier full of “smart technologies” that will benefit its citizens. The smart city evokes images of a techno-utopian city: where traffic flow is managed efficiently; where data move at lightning speed to underpin ‘smart’ decision making; where negative environmental impacts are sensed and defused. Implicit in these scenarios is the material infrastructure that supports them: high-speed connectivity, sensors, the Internet of Things, and Big Data. In light of such ubiquitous computing “smart” city systems, this panel asks: is the “smart city” a sensible city? Contributing to the growing social science critique of “smart” cities, this panel problematizes the “tidy” and “efficient” vision of technologically determined smart city system design. The panel asks questions such as: In what ways do smart cities reinforce or disrupt structures of power, modes of knowledge creation, or everyday experiences and encounters? Does smart city design facilitate opportunities for civic agency and civic imagination—in other words how might we understand “smart” technologies in relation to sense (accessible and actionable) and sensibility (affective and engaged)? We invite papers that reflect on the past, present, and futures of smart city discourses and practices from critical perspectives of Science and Technology Studies that include feminist, critical race theory, data science, urban planning, and design studies, among others.

Participants:

Informating Urban Life, Engendering Spatial Technology Kijun Yan, KAIST; Yoonjung Lee, KAIST

‘Citizen safety’ has been a key element in various smart city initiatives pursued by ensembles of public and private actors. Advocates of such initiatives stress that “smart” surveillance networks, along with citizen’s use of digital technology such as safety apps, will allow for more timely response to crimes. In South Korea, women safety has particularly emerged as a pressing social issue, appearing frequently in government plans for smart cities. It is no news that women are identified as a vulnerable social group, but recent calls for government action to protect women are related to certain population changes: remarkable increases in the numbers of unmarried women and one-person households. Until the late twentieth century, the space that women occupy was often included in that of the family or the employer (e.g. workplace or factory dormitory). Such traditional notions of women’s space no longer hold in this era marked by the decline of industrialism and family ideology. This paper examines how the space of women (and their movement) is newly problematized in contemporary Korea. It also analyzes different kinds of subjectivity imagined in recent urban safety measures. It asks: what kinds of gender roles are created through the use of safety applications by women who seek help? Where do smart city initiatives meet with or diverge from patriarchy? Building on insights from anthropology, STS, and critical geography, this paper will provide an in-depth analysis of an informational turn in urban governance and the engendering of technology.

Interface, Infrastructure, and Urban Data Imaginaries Aaron Shapiro, University of Pennsylvania, Annenberg School for Communication

As Matter (2014) has argued, although smart city interfaces (kiosks, APIs, urban “dashboards,” data visualizations, etc.) tend to be a central figure in smart city promotional materials, in practice they cover over as much as they reveal. Behind the digital urban interfaces of the smart city imaginary lay complex infrastructural realities from which citizens are excluded. At least according to corporate smart city visions. Looking to “actually existing smart city” initiatives (Shelton, Zook and Wiig, 2015), it becomes clear that publics can and do imagine infrastructure. In this paper, I elaborate on what I call “urban data imaginaries,” a mode of design that animates both the smart city’s digital interfaces as well as its material, social, legal, and technical infrastructures that generate urban data. Specifically, I examine a New York City government-sponsored design challenge held in 2012 and 2013 in which members of the public competed to “Reinvent the Payphone,” to re-envision what a “public communications structure” might look like in the 21st century. I contrast entries to the competition with LinkNYC, the Google-backed, gigabit wi-fi system that eventually won the City’s franchise bid to replace the aging network of public payphones. Entries tended to promote a coherent relationship between interface and infrastructure; infrastructural affordances worked in service to the interface concepts. Conversely, LinkNYC’s interface concept is divorced from its infrastructural affordances. Data collection to maximize advertising revenue comes at the expense of public or community benefit, despite official claims to the contrary.

Mission Convergence: The Smart City and “Muslim women” of Seelampur Sreela Sarkar, Santa Clara University

In 2008, the Indian state initiated a public-private partnership, biometric program Mission Convergence in order to transform the capital city of New Delhi into a “smart city” that would be
This paper examines struggles over whether and how regulators should mandate a system for auditing algorithms in the arms race of speed in financial markets. In today’s high-speed, algorithm-driven electronic financial markets, regulators proposed a new central database system for capturing a complete record of all market activities. The proposal includes a reduction in the time stamp standard of orders to microseconds (millions of a second) and clock synchronization to the atomic clock at the National Institute of Standards and Technology for “accurate market reconstruction” in the presence of trading algorithms that submit and process orders within microseconds. This paper analyzes public records of the discussions between regulators and market participants regarding these proposed regulatory changes that aim to accommodate algorithms that are not primary actors in trading. Institutionalizing this extremely fine-grained timestamp for orders would help produce exact sequences of orders between extremely speedy interactions between algorithms of traders and those of exchanges. However, it has raised opposition among market participants because it requires all trading systems to be upgraded to a much more technologically sophisticated system when only a subset of traders use such high-speed algorithms. Furthermore, these timestamp requirements result in shifting the benchmark of trading activities from human traders to algorithms since human traders who manually submit orders cannot time-stamp their activities up to microseconds. This paper also analyzes the resulting struggle between traders who rely on calculation and judgment and those who exploit speed of algorithms.
265. Technoscientific Rent I

The use of data to inform clinical decisions is not new to the United States there has been a concerted push to digitize patients’ medical histories through a universal electronic health record. To triangulate information across these disparate data types, and leverage insights that might have clinical value, new work processes and infrastructures for “data analytics” have emerged in clinical research. These are transforming how diseases are defined, profiled, diagnosed and quantified for clinical trials and patient care. Drawing from ethnographic fieldwork, I explore these practices of “electronic phenotyping” to ask what happens to the diagnostic workflow when computers take over identifying and profiling disease in patients. How do researchers “program” computers to sift through electronic health records and genetic data, and for what ends? I explore how notions of standardization, reproducibility and impartiality, prized by algorithmic coders, are complicated by the networks of human actors and actions behind the curtain of code.

Big Biology, Infrastructures, Algorithms, and Race: How genomics became imbricated in representations of race

This paper will focus on how socio-political and institutional notions of race have been woven into the fabric of contemporary practices of knowledge production in new biomedical genomic and population research. We conduct an archaeology of the algorithms and data infrastructures used in genomic research to unearth these assumptions built into its practices and tools. These algorithms and infrastructures together place individual humans in genetic categories called “populations” based on their DNA. Some sociologists and geneticists argue that these genetic categories map onto U.S. racial categories. Our analysis demonstrates that racial categories are reflected in population genetic categories only because assumptions about these racial categories are already built into the infrastructures and algorithms. Population geneticists construct populations by first constructing algorithms using selected pre-existing data, thus the output reflects those selected pre-existing data. Even further, the algorithms are based on pre-existing models of population structure, and the output also reflects those pre-existing models. The pre-existing data is already structured. “Populations” are technical categories constructed by population geneticists who use a host of infrastructures for particular purposes and under particular conditions. One can accept that populations are tools for particular purposes, but they are not meant to represent real people in real social groups in the world.

Chair: Ramya M. Rajagopalan

265. Technoscience Rent I

Participants:

Technoscience Rent: An Analytical Introduction to the Concept

In contemporary capitalism, a range of technoscientific ‘things’ (e.g. infrastructure, data, knowledge, etc.) are increasingly configured as assets, or capitalized property. As a result, accumulation strategies have had to change alongside the emergence of a new, technoscientific form of capitalism. Rather than entrepreneurial strategies based on commodity production, technoscientific capitalism is increasingly underpinned by rentiership, or the appropriation of value through ownership rights, monopoly conditions, and regulatory or market devices and practices (e.g. investment dispute courts, exclusivity agreements, etc.). While rentiership and rent-seeking are often presented as wholly negative phenomena (e.g. distorting markets, unearned income, etc.) in both neoclassical and Marxist literatures – and much in-between – it is my intention in this paper to unpack rentiership as the underlying political-economic process and practices that underpin contemporary technoscientific capitalism. Rather than being entirely negative, it is important to understand different forms of rentiership as they are constituted by and constitute different forms of technoscience. This has significant analytical, political, and normative implications for science and technology studies (e.g. how do rentier rationales configure research agendas, how do innovations enable rentiership, what are the consequences for social equity, etc.).

Value and the Distribution of Proximity: The Autorickshaw Meter and Regimes of Location

In Delhi, GPS and GPRS technologies have become a significant aspect of urban transportation. While the most familiar paradigm of these developments is taxis, the incorporation of smaller, three-wheeled vehicles known as autorickshaws is a significant aspect of such operations. A great deal of public discussion and conflict concerning platforms such as Uber and Ola has emerged around the pricing of journeys, and autorickshaws are unique in that unlike taxis, their prices remain strongly linked to government prescribed rate schedules given as a specified rate per kilometer. Insofar as price is customarily indexed to distance, the deployment of GPS and GPRS technologies, and their capacity to consistently and continuously determination location, is of interest in its potential to change the relationship between location and space. Here, a question of immediate importance would be what kind of asset locational data could be, and how such data can be made a source of value. However, I would like to focus on how the collection and use of locational data gives rise to the composition of a spatial regime which is in some ways alien to a common conception of space – how such a regime imitates while displacing it, in order to project and exercise a control over distributions of proximity among drivers and riders, and between them. It is this control as a modulation of the relation between location and space that gives rise to unique dynamics of rent, which an examination of the special situation of autorickshaws may elucidate.

Technoscience Rents and the STS (Insensibilities) of Monopoly and Market Configurations

The creation of assets out of public/private goods serviced by actors are increasingly viewed as rent-seeking, because a supposed lack of proximity to leveraging humans, as a central
Building the Market Society: How Markets are Justified in Everyday Life

Lawrence Busch, Michigan State University

A central feature of many contemporary societies from the United States to Turkey, from the Netherlands to Austria is that both the neoliberal ‘utopia’ of a market society and the illiberal turn toward nationalism and xenophobia are on the horizon. I shall argue that this apparent paradox is linked to the way in which contemporary markets and market-like institutions are performed. Specifically, both neoclassical and neoliberal economists agree that ethical issues are best resolved by the market, an allegedly self-correcting mechanism that follows the irresistible logic of mathematics and in which autonomous rational individuals engage in economic exchange. This particular way of understanding the enactment of markets has been advanced by systematically blocking the advance of alternative views of markets as ‘unscientific’ (read: lacking mathematical rigor) and by promoting markets and market-like justifications that conform to this enactment for all sorts of social problems ranging from health care provision to charter schools to private prisons and passenger railroads. Building on work by Boltsanski and Thévenot on justifications, by Callon and others on performativity and by legal analyses of institutional economists from Commons to Mercuro, I show how frontstage market transactions between buyer and seller (or their agents) are made to appear just and legitimate through the backstage actions of a host of other actors who are (usually) constrained to conform to established customs, standards, laws and technologies. Among these actors are the judiciary, tax authorities, marketers, financial institutions, standards development organizations, treasury officials, legislators, accountants and all those persons who socialize us from birth. These enactments by backstage actors are invisible to and usually uncontested by most frontstage market actors, thereby allowing exchanges to occur seemingly without conflict, irrespective of the fairness of the exchange. These actors embed markets in societies (Polanyi, Granovetter) and in so doing they deny the possibility of a single model of ‘the market’ that applies everywhere and to all institutions. The current illiberal turn is thus best understood as a reaction to efforts to make all institutions conform to a singular model of ‘the market’ by obliterating the customs, standards, laws and technologies used in different places thereby reversing the embedding noted by Granovetter, i.e., to embed society in the market. This paper contributes to STS scholarship by going beyond the specifics of performances ‘in the market’ (whether defined as a place or a transaction) and the details of neoclassical/neoliberal theory. It shows how all market exchanges invoke or build on the actions of other actors who ‘act at a distance’ from the market ‘place’ and whose existence is taken-for-granted by buyer and seller (and/or their agents). Together, these actors simultaneously enact a wide range of markets across time and space. If the audience is sufficiently large, I will demonstrate this via audience participation in the simultaneous creation of and reflection on a hypothetical market.

Chair: Kean Birch, York University

266. Sensing the Liveliness of Things and the Fragility of Life I

Traditional (Closed) Panel
Sheraton Boston: Floor 3 - Exeter

In 1969, Mierle Laderman Ukeles wrote the “Manifesto for Maintenance Art” where she associated mundane practices of maintenance (both at home and at work) with the broader area of care. Although both activities, she explained, are vital in the daily production, continuation, preservation of life, maintenance and care have typically been characterized as unworthy and merely reproductive activities carried out by women and low-paid workers. Recently, several STS scholars have demonstrated that investigating care (Mol, Murphy, Pols, Puig de la Bellacasa) and maintenance and repair (Cállen and Criado, Denis and Pontille, Dominguez Rubio, Jackson, Rosner, Ureta) could help decenter traditional issues in STS, such as agency, knowledge production, or the innovation and performativity of sociomaterial orders, as well as open up new ways to discuss politics and ethics. Though some of these works have explicitly discussed the relationships between care and maintenance, the encounters are still timid, and the discussion exploratory. We would like to use this open panel as a meeting point for those two conversations, and a way of teasing out the larger ethical, political and methodological consequences that the bringing together of the reflections on care, repair and maintenance could have for the renewal of STS sensibilities. To do so, we invite contributions across different domains such as arts, architecture, urban studies, media studies, organization studies, and of course STS.

Participants:
Hacking into the Environment that Disables: Dependency Work in a Community with Shared Disability and Chronic Illness
Alexandra Endaltseva, L’École des hautes études en sciences sociales / Linköping University

The emergence of educated patients brought a challenge to traditional relations between patients and doctors; especially in the realm of chronic diseases, such as multiple sclerosis. In such cases patients obtain valuable expertise in disease underlying conditions and therapy; and this expertise strengthens when patients start to organize (Epstein, 1996;2007). Organizing in a health-related or disability-related context can take different forms; yet the goal remains to repair connections in the broken system. Analyzing this goal and the means of its reaching cannot be complete without delving into the knowledge infrastructures that allow this work to happen, connecting neglected people, things, and interactions (Star, 1999). What happens if this repair happens in the context, not touched by manifestations of feminist
or minority movements? What happens when repair work must be strategically invisible? Based on the ethnographic inquiry of communication and knowledge work in All-Russian Multiple Sclerosis Society (RuMSs), the paper elaborates on the notion of dependency work as care (Kittay, 2005) in a knowledge infrastructure connecting humans, social worlds, norms, objects, and shared online and offline spaces, emerging within and around an association of chronically ill and disabled people. The paper proposes regarding repair work in this context as hacking into disabling environment, to which dependency work is a key mechanism. Dependency work here mutates knowledge infrastructures through a combination 4 processes: attachments, articulation, accountability, and expression of attitudes.

Maintaining the Menstruating Body: Feminist Interventions on Public Infrastructure Sarah Fox, University of Washington

Drawing on fieldwork and participatory workshops examining the care and maintenance of public restroom infrastructure in Seattle, Washington, this paper reckons with the ways access to menstrual hygiene resources stratify across a single city. The paper follows efforts of city workers, policy makers, social entrepreneurs, and activists who differently constitute and reconstitute restrooms to argue that their “itineraries of care” get tangled in existing hegemonic structures of capitalism, racial privilege, and patriarchy. Turning to feminist histories of technology, it then describes how a series of workshops that gather these different stakeholders expose the “non-innocence” of maintenance and catalyze opportunities for collaboration across disparate care and maintenance practices. Through recognizing the limits of care, participants move toward redefining the infrastructure of access for people with limited resources.

Diversity Advocacy as Care and Maintenance in Open Technology Communities Christina Dunbar-Hester, University of Southern California

Drawing from a multi-sited ethnographic examination of open technology cultures (free and open source software and hackerspaces) in North America and Europe, this paper explores activist interventions around the issue of “diversity” in these volunteeristic projects. (“Diversity” is variously construed, but most often focusing on gender.) These interventions are important because they expose many of the assumptions and tensions that surround participatory cultures. On the one hand, most of these projects are organized around voluntarism; in theory, everyone who wishes to participate is welcome to do so. On the other hand, diversity initiatives form in order to address the “problem” of imbalance in the ranks of participants. (A rallying cry within FOSS was a 2006 report showing that while modernity and science/technoscience with modernity has barely been touched. Bruno Latour declared early in STS that we have never been modern, treating modernity, looking at scientific practices as cultural with a small “c.”)

How Does the Use of Robots Affect Care in Nursing Homes? Ninon Lambert, Université de Montréal

In Japan, a decrease in the number of service workers is redefining the meaning of care in nursing homes. As time is compressed, more priority is given to attending to the basic physical needs of elderly residents, with less time devoted to recreational activities or basic interpersonal interactions. In this context, some nursing homes are increasingly using interactive robots to entertain and engage with their residents. This paper draws on four months of fieldwork in two Tokyo nursing homes that use social robots. I argue that while the meaning of care for caregivers is commonly defined as activities related to the maintenance of bodily functions, residents’ basic needs for caring interactions are increasingly fulfilled by robots. Social robots are built to yeArn for interactions and to intrinsically care for humans in robotic, electronic ways, but do care nonetheless, as their raison d’être is to act as companions. Residents also deploy new forms of care as they come to care for their robotic companions. Human caregivers are not unaffected by these relationships, as they enable the robots’ caring potentialities with elderly users by mobilizing, translating and analyzing the robots’ actions, as well as by maintaining the latter’s proper performance and physical integrity. Here, care is redefined as maintenance practices: maintenance of flesh, machine, and social interaction. This research provides new insights into the relationship between humans and robots, highlighting the actors’ aptitudes and shortcomings in perceiving, sensing and interacting.

Chair: Jérôme Denis, CSI - MINES ParisTech

267. Modernity and Science/Technoscience
Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Fairfax A

There has been increasing interest among science studies scholars in cultures of science and technology. Still, the relationship of science/technoscience with modernity has barely been touched. Bruno Latour declared early in STS that we have never been modern, treating modernity as a myth and thereby taking its consideration off the table for studying science. To avoid cultural reifications more generally, many scholars in anthropology and sociology have avoided the concept of modernity, looking at scientific practices as cultural with a small “c.” Meanwhile, even cultural analysts of technoscience have argued that technoscience is postmodern, making modernity irrelevant. But to the extent that both postmodernity and early modernity are aspects of modernity, science and technology have been at the heart of modernity, serving both the myth and historical formation. In this sense, modernity should matter to STS. Posing questions about modernity and its dynamics in practice can help us make cultural sense of technoscience as part of
contemporary life.

Science, Gender and the Modern Self Chandra Mukerji

Much of STS research has been used to disabuse us of cultural imaginaries of modern individualism and rationality in science, pointing to the social nature of science and the cultural embeddedness of scientific thought. Scientists are shown to be the opposite of independent, self-fashioning subjects, making selves through individual achievements. They do research for corporations, build networks of people and things to advance their ideas, and participate in international regimes of power. Modernity is a cultural imaginary that STS does not have to engage because science fails to realize its principles and scientists do not embody its values. In this paper, I want to argue that the relationship of modernity to science is more variable and complex, particularly from a political perspective. To make this point, I will describe two cases, the careers of Sir Humphrey Davy and Hope Jahren (author of Lab Girl). They both were particularly aware of discontinuities between ideals of modernity and practices of science because they battled the gender normativity of science. Davy argued that constraints on the self within the social world of scientists were at odds with true innovation and lessened the ability of scientists to put human rationality into practice. And Hope Jahren asserted her legitimacy as a scientist against her trivialization by colleagues by embodying and asserting ideals of modern individualism. In both cases, modern imaginaries of the self-fashioning individual were at odds with the social world of science and were used to struggle against the gender assumption about masculinity in institutional science.

Imagining Modern Forensics: Crime Scene Photography as Science and Art Kelly Gates, University of California, San Diego

The wall text from a recent exhibition at the Metropolitan Museum of Art, titled “Crime Stories: Photography and Foul Play,” noted: “The crime scene photograph, when not so gruesome as to be unexhibitable in an art museum, can have the hush and gravitas of a sacred ritual.” This curious statement accompagnies, are my starting points for querying the modernity of the forensic sciences, focusing on crime-scene photography as a cite where that modernity is enacted, staged and sometimes abandoned. What is distinctly modern about the forensic sciences, and how has that modernity been used to distinguish modern practices of criminal justice from earlier ways of establishing guilt and meting out punishment? How is the newness of new forensic techniques itself used to buttress truth claims and to establish the scientific and moral authority of the justice system? Why and how have crime-scene photographs become “exhibitable” in art museums, and what does the transfer of such images into art museum collections, and onto the walls of art galleries, suggest about the staging of forensicsciences as modern? This paper examines the crime-scene photography exhibition, and the techniques of observation that are both represented and enacted there, as sites for querying the modernity of the forensic sciences. I argue that the treatment of forensic photography as art (including distinctions between what is “exhibitable” and “unexhibitable”) reveals a great deal about the importance of crime and criminal justice as performative sites of modernity.

The Distinct Modernity of Post-genomics Stefan Timmermans

Next-generation sequencing technologies have entered the clinic, promising a genomic worldview. Yet, in spite of the capacity to sequence thousands of genes and the protein-coding exomes, most results are still interpreted in a more limited Mendelian genetic perspective. This paper traces the evolution from single, panel, exome, to whole genome sequencing and the barriers to a more genomic interpretation that pays attention to genomic interactions between genes and between genes and their environments. I also elaborate when geneticists rely on genomic hypotheses to account for uncertain or incomprehensible findings. These examples are drawn from a three-year ethnographic study of the return of exome sequencing results in a diagnostic clinic.

Science Fiction and the Experience of Modernity Charles Thorpe

In modern capitalist societies, “all that is solid melts into air.” In the same moment as this flux, however, there is also the experience of what often seems the immutability of modernity’s impersonal institutions, characterized by bureaucracy. Discussion of modernity in social theory and cultural history often emphasize the emergence with modernity of a new kind of social subject: the individual, apart in space and time from community and tradition, the bounded individual who is the subject of liberal political theory. And yet, a central theme of social theory and cultural history is also the way in which flux and the power of impersonal, abstract systems undermine this subject, bearing down on the isolate individual and splintering the self into fragments. In this way, the very structures and technological modes of life created by advanced capitalism threaten the liberal subject and undermine its ontological status (its reality as a bounded entity) and its epistemological status (its ability to know the world and its status as subject of knowledge). This paper will argue that science fiction is the literature of modern ontological insecurity. We should not think of it as a predictive literature of the future (although it often is, it often fails to be). We should think of it as the literature of the present, the literature that most effectively captures the experience of modernity.

An Infrastructural Fish Story: Water and Reflexive Modernity in California Andrew Lakoff, University of Southern California

California’s highly engineered water circulation system can be seen as a hallmark of mid-twentieth century American modernity. Its builders conceived of water as a “natural resource” to be efficiently extracted and managed for human purposes, such as agricultural production and urban growth. However, in recent decades, cascading ecological crises have put in question the assumption of an endless supply of water that underlay this model. Drought, endangered species, habitat loss, and the prospect of climate change have forced a reorientation toward the future of water. This talk asks: how are the risks generated by modernization processes themedatized within water management? Specifically, it focuses on the technical and political challenge posed to water infrastructure operators by the demand to address environmental needs, such as the protection of endangered species of native fish.

Chair: Chandra Mukerji

268. Making Sense of Climate Policy I

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Fairfax B

The phrase “the science and politics of global warming” correctly hints at the way science and politics are mixed together, but do such ‘mixology epistemologies’ prevent us from arguing that in some cases climate policy was more sensitive to politics than to science? If science and politics are inseparably blurred, does that mean we cannot investigate (at a National level?) some kind of spectrum of sensitivity and insensitivity? This panel invites reflections on a spectrum of sensitivity and insensitivity, using (as the empirical illustrations) national stories about climate change policymaking and/or efforts to establish science-policy interfaces (at various levels of governance and activism). Put provocatively, are we limited to being critics of linear-models of science-policy interfaces; limited to reminding people the boundaries are more blurry than they think? To what extent can or should we, as social critics, be sensitive to the ways climate change policy might be more sensitive (or insensitive) to knowledge or to politics? The question of sensitive and insensitive appears central, for instance, to some grand narrative debates in the climate research field: has global policy about climate change failed because of the hybrid and linear-model approach of scientists (see Howe’s ‘Behind the Curve’ (2014)), or because of the savvy manufacturing of doubt by industrial-political interests (see Klein’s ‘This Changes Everything’
In what way might national-level climate policy be more sensitive to science or politics, than nationally variable ways? Can some kind of ‘politics of the sensitive’ thus reveal what nationally-relevant insensitivities are built into climate regimes?

Participants:
The Construction of Climate Change Narratives Naomi Oreskes, Harvard University - History of Science

Over the course of half a century, climate scientists constructed a narrative about climate change as a problem in physical science. However, many scholars have noted that climate change is at least as much a problem in biology, sociology, economics, market failure, politics, and legal theory. Ironically, there was a period in the 1950s when some physical scientists did, in fact, consider an alternative narrative, one that included the social and economic implications of climate change. This talk considers why that alternative narrative failed in the scientific community. It then explores the meanings and implications of the “physical science narrative” of climate change, as it did in fact develop. Finally, I consider whether it might yet still be possible to reframe contemporary discussions in terms of alternative narratives, particularly ones that are more sensitive to the values issues that climate change raises.

Beyond Climate Science-Policy Consensus? Lay Public Sense-Making of 2°C Future in Japanese Focus Groups Shinichiro Asayama, Waseda University; Midori Aoyagi, National Institute for Environmental Studies; MASAOHI SUGIYAMA; Atsushi Ishii, Tohoku University

In December 2015, Paris, global climate politics entered into a new era by adopting a new international framework on climate change, the Paris Agreement. One of the most significant aspects of the Paris Agreement is that it clearly laid out the long-term policy goal as limiting the global average temperature increase to well below 2°C. To achieve such an ambitious goal, according to the latest science, knowledge (i.e. the IPCC), the world economy must phase out from fossil fuels to decarbonization or net zero emission coupled with so-called “negative emission” technologies by the end of this century. While the role of negative emission technologies draw strong criticisms from some experts, it is largely acknowledged as a ‘consensus’ within the science-policy expert circle that the 2°C future is the pathway for which humanity should strive. However, it is hard to say that this consensus on 2°C target among scientists and policymakers is widely recognized and shared by non-expert stakeholders and lay publics. In this study, we conducted seven focus groups on the 2°C future in Japan and interviewed publics. We investigated the connections between citizen participation and scientific knowledge in the socioenvironmental conflict about the installation of the Apolo Project in Gandarela Sierra.

Dependent Autonomy: The Creative and Conditioning Embedderness of Social Research Claudio Ramos Zincke, Universidad Alberto Hurtado

In September of 2016 a very large storm struck the State of South Australia, knocking over twenty-two electricity transmission grid towers, leading to a blackout across the State. Almost immediately, the Australian Prime Minister blamed South Australia’s reliance on wind power for the blackout, and declared that renewable energy inevitably invited a lack of energy security. Pro-active climate change policy is currently political suicide in Australia, and renewable energy is part of the collateral damage. While politically conservative attacks on consensual science have been well studied within STS, the difficulty is to move from an analysis of alternative rhetorics that by implication display the negotiability and heterogeneity of fact construction, to the more forceful position that some rhetorics are less grounded in reality than others. Does STS have the resources for disputing actor integrity? Do we need such resources? In this talk I highlight key junctures in Australia’s recent climate related policy discussions, stemming from the South Australia blackout, that appear to force the question of judging actor integrity: first, political avoidance of internal regulator advice; second, the untethering of public blame from expert assessment; third, the gloomy depiction of renewable energy options despite internal federal reviews painting a rosy picture; and fourth, political short-cuts in the energy and climate debate that raise concerns of deliberate obfuscation. My main aim is to suggest recent invitations to construe the STS role as one of forever opening policy options, and clarifying the legitimacy of alternative interpretations of data, might not be the best tool kit for an STS-inspired take on the integrity of actors.

Chair: Darrin Durant, University of Melbourne

269. Expertise, Assessment and the Effectiveness of Research

Tradional (Closed) Panel 9:00 to 10:30 am
Sheraton Boston: Floor 3 - Gardner A

Participants:

Mapping Connections: Scientific Knowledge and Social Movements in a Socioenvironmental Dispute in Brazil Elisa Sampaio de Faria, Federal University of Minas Gerais; Alessandra Rondina Fontanensi Gomes, UFMG; Jéssica Alves, UFMG; Francisco Ângelo Coutinho, UFMG

We investigated the connections between citizen participation and scientific knowledge in the socioenvironmental conflict about the installation of the Apolo Project in Gandarela Sierra. Given the heterogeneity of the participants in the dispute, we combined the Actor-Network Theory (Latour, 1994; 2002; 2004; 2012) with Jasanoff’s (2012) discussions about the ways science, technology and expertise relates to the politics and contributions of the cosmopolitical proposal by Stengers (2005). Apolo consists in the installation of a complex that includes iron ore, lead residues and railroad in Gandarela Sierra, located in Minas Gerais, Brazil. This project might be set in a place where are important aquifers and caves, endemic fauna and flora and a relevant palaeontological site. All elements of a technical-scientific controversy are present: activists, who produce and give visibility to the issue, the dispute between profitability, viability and dangerousness, a poor political organization pressured to make a decision, sometimes trying to avoid legality, sometimes trying to respect it. The analysis of the trajectory of Apolo provides insights about how science, technology and experts are related with politics in Brazil. In Western countries, expert’s assessments are recognized as legitimate authorities by many of the public agents, be they politicians or institutions (Jasanoff, 2012). However, in this Latin-american dispute, the expert’s assessments were not recognized as legitimate authorities by many of the public agents. This suggests that the relations between science, technology, expertise and politics in Brazil are profoundly different from those observed in Western countries.
I compare the trajectory, in the period between 1967 until 2010, of three significant Chilean sociologists according to their relations to different social entities: political parties, State, and Church, included in their network of production. I review and analyze the way in which they process these relations and the effect these have on their scientific products. The methodology is based on interviews and document analysis. The main result of the study is that the productivity and diffusion of the sociological works of these sociologists are strongly associated with the power, strength, and diversity of the network of production in which they are embedded. This position involves being influenced and oriented by the components of the network but it is fruitful as far as the researchers maintain autonomy in their work of investigating, processing reality in new ways although responding, simultaneously, to the concerns of the network. In this case, the sociologists maintain a continuous search for new information, new empirical references, and new theoretical sources. Hence, the positive combination consists in a continuous balancing between external conditioning and independent search. When the balance between conditioning and autonomy is reached, the relation is productive; when the conditioning is too much, the results are less useful; when the autonomy is much superior, the results have limitations for their circulation and utilization. Therefore, some form of dependence is necessary, but it is continually on the verge of being harmful for the investigation or, at least, an obstacle for its development. Consequently, it requires a continuous monitoring, not easy to carry out.

Evaluation as a Consultation Process: The Future Mode of Assessment of Government Funded S&T Research Organisations JeelHyun Suh, Korea Institute of S&T Evaluation and Planning: Juhoo Kim, Korea Institute of S&T Evaluation and Planning “Objectivity” and “equity” have long been the major elements for retaining the value and accountability of evaluation. Some standards of “truth” – often in quantified terms – have long been the basis for providing justification of evaluation results. This paper introduces the current trends in the evaluation of government funded research projects and organisations in South Korea where there is an increasing role of experts, with declining dependence on bibliometric data on journal publications. Experts review and give advice on selecting qualitative indicators that may best explain the research outcomes within 3-5 years. These indicators are then used in the evaluation of the performance of research or research organisations. However, there are still some challenges in reaching near agreement on the indicators, as well as in bringing accountability to the evaluation results, depending on the characteristics of the research. This paper uses the case study method for reviewing and analyzing the interactions among those involved in the process of recent evaluation of three research organisations (Korea Institute for Advanced Study, Korea Brain Research Institute, Daegu Gyeongbuk Institute of S&T) that are directly funded by the Ministry of Science, ICT & Future Planning (MSIP) in South Korea. This paper argues that the research evaluation in “post truth” era requires better understanding of the interactions among the players involved in the evaluation process, where accountability – rather than objectivity – is increasingly becoming the key source for confirming evaluation results.

Academic Evaluation as Signal and Symbol Kateria Guba, European University at St. Petersburg

The number of studies claims that the use of quantitative metrics in academic evaluation is linked to the state desire to cut funding for public higher education. When governments invest in higher education they need some grounds for decision-making. Although metrics are clearly related to state’s desire to emphasize the higher education’s economic role, this assumption has rarely tested in an empirical way. Data from multiple resources on state control of Russian universities allows us to clarify how the state uses university’s evaluations for decisions to punish the worst. All Russian universities are obliged to participate in an annual evaluation organized by the Ministry of Education and Science. As a result, the Ministry has information about dozens of metrics for hundreds of universities. Within the classical decision-theory point of view, information is gathered because of the desire to improve decisions. Empirical research on using evaluations in the case of state decisions about universities demonstrates a pattern that can’t be explained in such terms. Particularly the state systematically penalizes the universities which are simultaneously evaluated as effective organizations. Instead of using different kinds of metrics about research and educational activity the state bases their decisions on the university type. The severe sanctions including the shutdown the university depend on whether the university is a private organization. We suggest that this finding is a consequence of bureaucratic control of academic organizations which operates while being distanced both physically and symbolically. Fine-graded metrics concedes simple categorization because their application makes the decision-making more complicated and questionable. There is no an agreement on the key performance metrics for academic organizations. From the point of view of state control, it is natural to suspect private organizations to be the main focus of scrutiny even if their performance results are passable. We observe a situation where the state asks for evaluation reports but evidently does not read it. Considering these phenomena we conclude that these reports are to legitimize or, at least, symbolizing a commitment to a rational decision-making (Feldman, March 1981). This study uses data on the application of sanctions in relation to universities (cancellation of a license and accreditation). The data about sanctions are merged with results of annual evaluations of universities conducted by the Ministry in 2015 and 2016 (1,748 cases).

Chair: Kateria Guba, European University at St.Petersburg

270. Beyond Identification: Biometrics and Everyday Life

Traditional (Closed) Panel

9:00 to 10:30 am

Sheraton Boston: Floor 3 – Gardner B

From unlocking personal smartphones and designing national ID cards and passports, to conducting criminal investigations and verifying financial transactions, the use of fingerprints, facial recognition data, iris scans, and other biometric modalities in ID cards, databases, and scanning devices is increasingly becoming part of governing social life. The use of biometric identification technologies not only places the locus of identity onto the quantified human body, but also intervenes in and (re)configures a variety of sociotechnical relationships. These include, but are not limited to, relationships across: security, risk, and civil liberties; exclusion, criminalization, and citizenship; data, subjectivity, and ontologies of the body; power, expertise, and resistance to surveillance; and histories of biometrics, antecedent identification practices, and techno-optimistic (or pessimistic) future visions of achieving “unique” identification. The ubiquity of biometric technologies as preferred methods of identification, and their inscription into everyday digital infrastructures, presents opportunities to critically examine how the use of biometrics constitutes new conditions of governance and resistance. This open track welcomes papers that investigate how identification technologies, particularly those based on biometrics, are reshaping the governance of social life across national, social, political, administrative, institutional, infrastructural, and technological contexts. It aims to interrogate the socio-cultural and technopolitical dimensions of biometric identification technologies beyond their usual framing in terms of security or surveillance by bringing insights from STS into conversation with perspectives in surveillance studies, critical security studies, information science, and other fields.

Participants:

Balancing Biometrics: Electronic Ankle Monitors and the Ethics of Digital Aesthetics Lauren Kilgour, Cornell University

At present, discussions about the social sides of cybersecurity focus on the consequences of large-scale corporate and international cyber hacks and attacks. While warranted, such a focus leaves the everyday aspects of the social sides of...
The Biometric University: Administration, Surveillance, and the Moral Economy of Gestures

Yuliya Grinberg

"In the future," announces Beau at a regional conference for developers of sensor-enabled devices, "we will live in a frictionless world" as he flips to the next slide of his presentation deck with the words “New Normal” emblazoned across an image of a crowded urban scene. This has become a commonplace vision of a data-driven world. How should we understand the proposition that the role of wearable and sensor technology is to deliver a friction-free experience? For this purpose, I propose the working phrase: moral economy of gestures. This expression builds on Anna Tsing’s “economy of appearances,” a concept she invokes to think about capitalism’s many performances, presentations, and screens. But it also echoes Oksana Bulgakowa’s “factory of gestures.” Bulgakowa’s work explores how period technologies have helped construct and shape a new Soviet body. Here, the expression helps me to connect the training of the body performed by contemporary wearable technology with the somatic training that first originated on the late 19th century factory floor. In touching on this historiography, I think through both the connections and discontinuities between turn-of-the-century projects of scientific management and contemporary self-tracking, following as I do so STS scholars who have long considered the multiple entanglements between technology and bodies. In particular, building on my ethnographic research with wearable device makers and self-tracking practitioners, I explore how contemporary technology that aims to synchronize digital flows with the flows of hands, limbs, and bodies connects with the demands of the “gig economy” that increasingly calls for a flexible, agile body capable of going along with the flow.

The Biometric University: Administration, Surveillance, and Identification of Students in Campus Dining Halls

Michelle Spektor, MIT

In recent years, a number of universities in the United States have incorporated biometric technologies into the material design of student ID cards, the spatial layout of dining halls, and the software of meal plan systems. The use of biometric identification in these contexts is generally hallmarked by (i) the integration of students’ biometric data, including fingerprint, finger-vein, or iris scans, into student ID cards or a centralized database, and (ii) the implementation of dining hall access systems that include technologies such as biometric scanning devices, turnstiles, and software that performs transactions by linking students’ biometric data with their meal plan accounts. This paper considers the introduction of biometric identification in university dining halls as part of a broader trend toward the incorporation of what are commonly considered as security and surveillance technologies into unexpected contexts. How and why does the biometric identification of students come to be thought of as a desirable technological intervention for the exigencies of university dining hall administration? By drawing upon ethnographic interviews and participant observation conducted at two universities in the northeastern United States, this paper traces the technology transfer of biometric identification across infrastructural, labor, financial, bureaucratic, and corporate networks entailed in university administrative activities and decisionmaking. While biometric identification technologies are integrated into extant university infrastructures and designed to fit the surveillant and administrative goals of “keeping track” of students and their meal plans, they also shape the spatial and subjective experiences of accessing, eating, and working in university dining halls.

Chair: Ranjit Pal Singh, Cornell University

271. Responsible Research and Innovation in Academic Practice

1: Institutions, Careers, Evaluation and Academic Integrity

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 3 - Hampton A

In current policy imaginaries researchers are expected to respond to societal needs and ‘grand challenges’, whilst at the same time maintaining standards of scientific excellence. In Europe these calls are being invoked under the banner Responsible Research and Innovation (RRI) (von Schomberg 2013). Arguably, one of the more novel aspects of the RRI discourse is in signaling a shift from the governance of risk to the governance of research and innovation itself (Felt et al 2007). Ideal-type representations thus suggest a shift away from prospective outcomes-based modes of risk governance (associated with accountability, liability, and evidence), toward embedding future-oriented dimensions of responsibility like anticipation, care and responsiveness as core values throughout the research process (Stiglitz et al 2013, 1569). Through promoting such virtues, RRI is thought to promise ‘greater potential to accommodate uncertainty [of research and innovation] and allow reflection on purposes and values’ (ibid). At the same time, many structural, institutional, and epistemic conditions are being widely reported which would appear inhospitable for certain modes of care and responsiveness to flourish in academic work practices. These include: hyper-competition for dwindling state resources; narrowing career opportunities; commercialization and privatization of knowledge production and scholarly communication infrastructures; epistemic demands for positive results (in some fields); perceived acceleration of academic life and a loss of time to reflect; and the rise of new metric assemblages for auditing academic performance. This session situates how practices of anticipation, care and responsiveness play out in institutional contexts, with a focus on careers, evaluation and academic integrity.

Participants:

Irrigation, care and responsibility: Nature and Science discourses on transgressions of good academic practice

Ulrike Felt, University of Vienna, Department of Science and Technology Studies

What counts as good scientific practice is a topic that has gradually moved to the core of debates around contemporary research. Lack of reproducibility, too much embellishing of visual representation, flaws in review systems, fabrication of data, sloppy documentation and many more transgressions of what should be regarded as good scientific practice get increasingly addressed in leading science journals such as Science and Nature. This paper investigates how these journals as hybrid actors (speaking to the community, for the community and about the community of researchers) frame the problems at stake, the reasons why they see them to occur and finally, how responsibility gets distributed in the different problem areas identified. All this will be done over a longer period in time, i.e. from 1990ies to today. I conceptualise debates about misconduct as moments of irritation of the research system and its imagined value order. Studying them will allow us to looking into how the
orders of worth prevailing in research get spelled out, how they relate to questions of responsibility and its distribution and how all this changed over time. This means asking: who cares, why care and what, actually, should be cared for? These observations provide a start to reflections on changing research cultures and the difficulties to deal with questions of transgressions at a moment of time which is particularly laden with concerns about recent re-appropriation of responsibility.

(Re-)Disciplining Academic Careers. Caring for Interdisciplinarity and Careers in a Swedish Climate Science Research Center Ruth Müller, MCTS TU München; Wolfgang Kaltenbrunner, Munich Center for Technology in Society (MCT)

Over the last decades, actors in research policy and university governance have promoted interdisciplinarity in research and training, framing interdisciplinarity as crucial for addressing the increasingly complex problems of contemporary society and for building sustainable futures. The creation of topic-focused interdisciplinarity is part of this growing focus on interdisciplinarity. In this interview and observation-based study, we explore how mid-career researchers (postdocs; assistant professors) in an interdisciplinary climate science research center in Sweden experience the relationship of interdisciplinarity and academic careers. We trace tensions between the interdisciplinary ambitions of the center and its researchers and the metric-centered career norms that permeate the university where the center is located. While researchers are generally well able to secure employment through interdisciplinary projects funded by more application-focused agencies, building a long-term career within the university is perceived to require processes of (re-)disciplining their work and abandoning a thorough interdisciplinary orientation. Articulating the implicit hierarchies between interdisciplinary and disciplinary work at the center, researchers differentiate themselves and their colleagues into “politically correct researchers”, who are funded now, but whose futures depend on the next topic-focused funding calls; and “reliable academics”, who also succeed on a disciplinary stage, i.e. by securing funding from disciplinary agencies or by publishing in disciplinary high-impact journals. Only the latter group is considered competitive for long-term university positions. Mid-career researchers hence find themselves – often after years of interdisciplinary training – at a crossroads where they feel they must decide between continued care for interdisciplinary practice and their future career options.

Bridging the evaluation gap Paul Wouters, Centre for Science and Technology Studies, Leiden University

This paper thinks through the issue of bridging the gap between what researchers in STS value in their academic work and how they are assessed in formal evaluation exercises. Drawing on the recent evaluation of our Centre for Science and Technology Studies (CWTS) at Leiden University, I will defend the proposition that is it productive to see evaluations not as the (obviously impossible) attempt to produce a true representation of past work, but rather as the exploration and performance of “who one wants to be”. Reflecting on why STS should do more than just play along to survive in “the indicator game” (Fochler & De Rijcke 2017), I suggest that our field should contribute to questions as: “Do not escape into your professional decency, but ask your humanity in front of tragedy of atomic bombs. These approaches focus on individual response to public inquiry; therefore, it contains a sort of “internal” view of responsibility. On the contrary, the new wave of RRI, which is included in Horizon 2020 of European Science and Technology Policy, explains that “RRI implies that societal actors (researchers, citizens, policy makers, business, third sector organizations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society (Horizon 2020 URL). It includes “open-up questions”, “mutual discussions”, and “re-institutionalization” (Ulrike, 2016). These approaches focus on not only individual responses but also institutional facet; therefore, we can all them as “externalism” or “interactive model” of responsibility. This paper classifies these differences and will discuss the future perspectives based on case analysis on the Nuclear Power Plants accidents.

Chairs: Maximilian Fochler, University Of Vienna Sarah de Rijcke, Centre for Science and Technology Studies (CWTS)

272. In the making, On the move: Global Perspectives on Technology Appropriation I

Traditional (Closed) Panel 9:00 to 10:30 am Sheraton Boston: Floor 3 - Hampton B

Stories about technology are often narrated from the myth of the hero: genius men who, in specific moments of lucidity that reflect the feeling of an era, rescue an invention, an innovation, for the professions. Different models have been proposed to overcome this hero narrative: e.g., changing the point of observation of history, or focusing on controversies, trajectories or agencies that explain the meanings or the evolutions of a given technology. Systems are (re)sensitized through the study of technological appropriation, a process that allows us to observe these trajectories from an antiheroic perspective, with an emphasis on the global diversity of user groups, sites, contexts, platforms, infrastructures involved in their access, learning, incorporation and transformation of technologies in use. The rewriting and restructuring of a given technology can be seen from a paradigm of mobilities (Urry et al.), which allows us to open our accounts to heterodox approaches in the histories of technologies (postcolonial, collectivist, feminist, among others). This panel hopes to be a space for dialogue and debate about stories of technological appropriation. We’re looking for comparative works, explicitly global, either on dynamics or extended cases on the cultural processes of a technology in a particular community — e.g., Capable Share Studies on the appropriation in multiple locations that represent the different stages of the evolution of a certain technology.

Participants:

Is Technology Appropriation a Central Concept in STS? Martin Andréis Perez Comisso, SFIS - Arizona State University

Technology can be understood through internalist and externalist relations. On the technological externalism, the concept of technological appropriation rests central in the configuration of individual-artefact relations, being described by several models. Even so, technological appropriation is insufficiently described from science and technology studies. This work explores the rational model of technological appropriation (Quezada and Perez Comisso, 2016) where, based on a comparative theory methodology, it argues about the need to construct integrative models in technological theory, capable of incorporating different disciplinary perspectives of study to through a narrative of how technology changes us. The rational model of technological appropriation describes the phenomena of access, learning, incorporation, transformation and evolution of technology from various comparative cases of ICT (Carroll, 2001), technological history (Proulx, 2007), anthropology of technology and engineering studies, showing its versatility in

Pugwash Conference held in Nagasaki in 2015 was “Remember your humanity” and scientists asked themselves holding a
Redefinition of an inherently technological concept, such as appropriation.

Appropriating Mobile Phones for Livestock Production and Marketing: The Case of the Maasai and Wasukuma Pastoralists in Tanzania Luis Lourenço Soares, ISSTI, University of Edinburgh

This paper discusses the rapid uptake of mobile phone by pastoral communities in Tanzania and its use as a tool to tackle herd management and especially marketing challenges. Applying the concept of ‘appropriation’, the paper examines the extent to which the mobile phone is changing how livestock keepers interact in the livestock market and how this is affecting their livelihoods. The methodology involves an interregional comparative analysis of two key production regions: (the Lake Zone and Arusha) and two respective groups of livestock producers the Wasukuma– who keep livestock under the extensive (pastoralist) system and the nomadic Maasai pastoralists. We introduce the idea of a spectrum of appropriation. The pastoralists have found the scope offered by mobile phones for remote communication readily helpful in coordinating their nomadic herds. The agro-pastoralists have however embarked upon a more extended appropriation of the mobile to support more organised systems of livestock transport and marketing. We’ve also report on the relative failure of a government/donor sponsored attempt to introduce an information system to support livestock marketing. The paper discusses the role of Information and Communication Technologies for Development (ICT4D) as tools for poverty alleviation, examining whether it is better to design systems dedicated to particular contexts and purposes or flexible general-purpose tools that can be appropriated by local users.

Maintaining the Medium: Notes from the Television Repair Shops of Andhra Pradesh Padma Chirimamilla, University of Michigan

In this paper, I look at how television repairmen in small-town south India contend with the cycle of upgrades and obsolescence that characterize technological “advancement” in their own work and learning. In doing so, I consider the impact of a moment of transition from “analog” CRT televisions to “digital” LCD/LED televisions upon repairmen’s everyday work and future prospects. Based on eight months of ethnographic work conducted in a small-town service center in south India and interviews with independent repairmen and cable television operators, I look at how the transition from CRT to LED was illustrative of a broader shift from devices once considered “rough and tough” and easily repairable, to television’s current status as a device seemingly too expensive and hard to repair. My goal in this paper is to complicate the narrative of technological change and advancement normally attached to media technologies. To do this, I examine a particularly mundane (and seemingly “obsolete”) device: the television set. I look at the changing device itself, the varying knowledge it repair demanded, and the practicalities of running a small town shop specializing in the repair of televisions – a device that was slowly and obviously growing more obsolete in view of changing media consumption practices and habits. In looking at repairmen, I consider alternative ways in which the technological progression of the television set might be understood – as a barrier to acquiring a hands-on “practical” knowledge of a device, as a complication in running a small-town business, as a challenge to be examined and taken apart, quite literally. Through an examination of the men, materials, and networks of people that came together to constitute the infrastructure supporting television’s presence in people’s everyday lives, I consider how we can study technology not as a harbinger of some future or inevitable progression, but as a fragile constant in the background of people’s lives, in need of upkeep and maintenance, subject to the changing whims of companies and designers not attuned to the rhythms of everyday life in out-of-the-way places. In foregrounding the work of repair and the struggle to keep ordinary media technologies functional and available to consumers, I hope to expose new veins of analysis through which we might begin to understand the kinds of labor and forms of knowledge that undergird the presence of mundane technologies in our lives.

Making French Metro Run in Taipei: The Imported Large Technological System and Local Infrastructural Network Kuo-Hui Chang, National Taiwan University

Drawing insights from academic development in the field of history of technology, Thomas P. Hughes established the large technical/technological systems (LTS) theory by examining the interaction of technology and society through the case studies of how electric grids were created in Chicago, Berlin and London. His study of the developmental process of LTS construction is a classic work in sociology of technology and STS. Hughes’s research has inspired further research about how LTS produces cultural and political impacts. However, Hughes’s LTS theory has not been applied to the non-Western world and its local contexts, social institutions, political economy, and so on. New theoretical concepts could be generated with LTS theory grounded in cases from the non-Western world. By examining the building history of the Muzha Line of the Taipei Metro System from the late 1980s to the mid-1990s, this paper attempts to offer some thoughts on how to study the transferred LTS from the West to Taiwan and what this might contribute to current research in LTS studies in general. This case study fills a theoretical gap in our understanding of how foreign systems are exported into countries that have no related technology. When one of the most advanced metro technologies in the world VAL (véhicule automatique léger, light automated vehicle) was transplanted from France to Taiwan, its technological momentum triggered a series of deeper problems that were embedded within the structural context of Taiwan’s developmental and authoritative state. This paper shows what Taiwanese policymakers and engineers struggled for in the mutual reshaping of the imported large technology system and local infrastructural construction network. These key players eventually developed localized guidelines about how to build metro systems special to Taiwan. This paper explores the meaning of their efforts in terms of the origin and evolution of the technological profession and its identity.

Technology Reconfiguration and Emergence of New Practices: A Case of India Against Corruption Nikhil Agarwal, University of Edinburgh; James Stewart, University of Edinburgh; Robin Williams, The University of Edinburgh

Social movements are pathways towards augmenting democratic participation and public policy. The economic, political, social, environmental and cultural crises over time provoke many issues from a range of social movements particularly in single-issue groups. The multiple forms of protests from the society embody a ray of hope for capturing the narratives and possibilities in Science and Technology studies (STS). STS scholars are forever intrigued about relationship between innovation, technology and new practices. Technology appropriation in single issue is understudied particularly in developing countries. This inquiry is focused to understand the technology appropriation by single-issue groups in India. Case method was chosen to study India Against Corruption movement that mobilised over 400 million people the between the years 2010-11 by engaging various online and offline strategies. The research highlights how the unique cultural phenomena ‘missed-call’ was embraced by social activist for communication and collaboration. This paper looks into the stories of appropriations and creative configuration of technology that had led to the new innovative practices adopted in both political and commercial space.

Chair: Martin Andrés Perez, Comisso, SFIS - Arizona State University

273. It's All in the Mind?

Traditional (Closed) Panel

9:00 to 10:30 am

Sheraton Boston: Floor 3 - Kent
Participants:

**Becoming Parapsychology: How a Democratic Science of the Mind Moved to the Margins**

Alicia Puglionesi, Consortium for the History of Science, Technology, and Medicine

This presentation traces the emergence of contemporary parapsychology through a series of encounters between leaders of the American Society for Psychological Research (ASPR) and its participants around the turn of the twentieth century. Though professionalization and the move to the laboratory played a well-documented role in demarcating psychology from psychical research and its successor, parapsychology, I argue that close attention to the marginalization of non-professional investigators is needed to reframe our current conversation around public engagement with science. The ASPR formed in 1886 to systematically collect and study reports of supernormal mental phenomena, with the aim of revealing underlying physical or psychological laws. Though led by men with recognized scientific expertise, its labor came from participants from all walks of life who organized themselves and corresponded as colleagues. This democratic model of knowledge-production, entwined with a popular American rhetoric of Baconian empiricism, produced a short-lived but vigorous community of investigators. However, escalating tensions between amateurs and professionals caused the disintegration of the knowledge-making community and its fragmentation along the lines of “proper science” and “parascience” – an epistemological gap that only widened during the twentieth century. Using the ASPR’s archived correspondence, I reconstruct the relationships that three successive leaders forged with society members and with a curious public, comparing their styles of engagement to understand how a participatory forum came to feel extractive and paternalistic. The outlines of an imperfectly-realized democratic epistemology appear and fade in these exchanges, pointing to flaws in more recent iterations of citizen science, and potential remedies.

**Beyond Black and White: Infant Visual Stimulation Cards as a Form of Neuroculture in Taiwan**

Jia-shin Chen, National Yang Ming University

Infant Visual Stimulation Cards (often referred to as flashcards) have been gaining increasing popularity in Taiwan for the past decade. These cards, which are usually in black and white, are often depicted as visual games that can stimulate and help to “develop” infants’ brains. However, some experts have claimed that these products are scientifically unfounded, and are nothing but commercial tricks. Despite the controversies surrounding these cards, flashcards have successfully penetrated the daily lives of many newborns and babies, particularly through the postpartum care centers that have proliferated in Taiwan’s urban areas. These disputes remain unsettled and constitute an intriguing case of neuroculture, in which a product claiming to be based on neuroscience has infiltrated the parenting culture and practices that aim to enhance infants’ overall potential. Therefore, using an extensive literature review and in-depth interviews with related persons (parents, care center workers and experts), this study intends to examine the ways in which these products were introduced and applied by various actors. The results suggest that neuroscience has become a cultural force that has deeply influenced parents’ choices on the methods that they consider appropriate for raising kids. The mysteries of the infant brain and the science uncovering these mysteries contribute to new depictions of infant brain and a burgeoning economy of anticipation. However, parents do not always project the expected imagination onto flashcards. In this sense, this study contributes to STS literature on public understanding of science and the notion of science as culture.

**Epistemic Injustice in Healthcare**

Huiren Bai, Xi’an Jiao Tong University, China

This article will analyses the phenomenon of epistemic injustice within contemporary healthcare. I offer an epistemic analysis of this problem using Miranda Fricker’s account of epistemic injustice. I detail two types of epistemic injustice, testimonial and hermeneutical, and identify the negative stereotypes and structural features of modern healthcare practices that generate them. Then I will discuss cases of delusions where patients are suffering from testimonial injustice by virtue of having a mental disorder that is so often associated with attributions of irrationality and incomprehensibility. In order to challenge the testimonial injustice, there needs to be an awareness of its possibility and thus recognition of the role of certain stereotypes in assessing these mental states. Challenging the stigma against mentally ill and adopting a holistic view of delusions can help tackle the prejudice that pre-empt the testimonial injustice. Theoretically, the article will show delusions are even more complex phenomena than we thought. Although they can be seen as irrational beliefs they contain information about the person’s background and culture, they have plenty other different properties that we need to be aware of. There have been significant efforts in philosophical analysis of delusions and several debates over their nature. Practically, clinicians need to be aware of attributing delusional beliefs to patients too easily. Not only that carries a stigma attached to the label, it can negatively affect the relationship between professional and patient, and above all there is a potential in negatively affecting the patient’s self-worth through ignoring their statements as delusional.

**Rethinking Ethnography in (Post)Colonial New Caledonia**

Nathanaelle Soler, EHESS

This paper will present the epistemological and ethical challenges encountered during my ethnographic research on mental health in New Caledonia. Ambitioning to uncover the subjective experience of mental disorders on this island, I first followed a rather classic methodology guided by a rigorous recollection of ethnographic materials – such as formal open-ended interviews and field notes. But in the specific sociopolitical landscape of (post)colonial New Caledonia, and being a white woman rose in this colony, this classical approach cut me off some of the minority voices, especially the ones of women and of the young. In the first stage of my research, it favored top-down discourses enunciated by the biomedical practitioners as well as by the political, religious or traditional authorities, who all try to give me an account of the alleged causes of youth suicides or gender-based violence. My access to the subjective experience of postcolonial disorders and to forms of social suffering was finally made possible by an informal and unformed ethnography based on friendship, the attention to silenced voices and also an attention to the various positions I occupied in the ethnographic interactions. I’ll expose the ethical and methodological challenges of this unstable and unsettled ethnography, based on the confusion of ethnographic positions, attitudes and geographies, and I’ll present the other methodologies I intend to experiment in my next fieldwork. Indeed, I intend to work with a group of Kanak high school students on the narratives I collected from the elders, so as to engage with them in a process of mutual research, thus ambitioning also to renew, if not to decolonize, the anthropological tradition of research in New Caledonia.

Chair: Alicia Puglionesi, Consortium for the History of Science, Technology, and Medicine

**274. Engaging Material Insensibilities and their Political Effects**

I: What Feminist Materialisms Can Contribute

Traditional (Closed) Panel

9:00 to 10:30 am

Sheraton Boston: Floor 5 - Public Garden

Feminist materialisms provide a theoretical-empirical framework for accounting for the intra-actions of material becomings and meaning-making, e.g. of bodily, technological and social forces in technoscientific research practices and their constitutive apparatuses, including normalizing discourses in the constituting of phenomena. These entanglements suggest that ‘we’ are always implicated in a web of ‘ongoing responsiveness’ (Barad 2007). Material feminisms thereby complicate ethico-political...
agency and responsibility whose epistemic purchase has also been queried in STS (e.g. Latour 2004). They show that sensing and attending to something also involves disengaging from other agencies to render phenomena sensible; importantly, they focus on the spacetimematterings of the nonrelational, nonparticipative, insensible and inhuman within relationality (e.g. Barad 2012; Yusoff 2013; Schrader 2015). This panel invites contributions informed by feminist materialisms that engage what the sensible-insensible conundrum might mean for our research, teaching and political efforts within the productivitetimespaces of technoscience, and how STS researchers become responsible and accountable for their interventions. What research and teaching encounters—even forms of nonparticipation—might be created? When do insensibility and indifference become graspable? And how might they also link to ‘epistemologies of ignorance’ (Tuana 2006) or ‘Failures of imperceptibility’ (Murphy 2004)? How might an attentiveness to the insensible ‘help us think between natures to promote a noncontemporary ethics of apprehension’ (Yusoff 2013)? And how can insensible contribute within intra-actions be made communicable within the STS community and wider publics?

Participants:

Bleaching Cells: Locations of Disavowal as Sites for Further Ethical Affection
Mara Dicenta-Vilker, RPI

Using ethnographic research conducted in a biotechnology laboratory, I will argue for the necessity of New Materialist STS scholarship to be affected by the negative. Barad’s ‘agential separability’ (2007:140) marks those cuts that makes something matter in relationship to that which is left in its exteriority. However, New Materialisms, along with Affirmative Feminisms, tend to focus entirely on that which is produced (virtually or actually) without attending to that which is no longer producible—what is literally ‘cut-off’ from the possibility to become. My fieldwork suggests that the practice of ‘bleaching’ observed in a lab working with yeast cells is a disavowaling mechanism (Freud, 1929). Once yeast cells are no longer deemed viable enough for research, they are bathed with bleach and poured down a sink. Thrown out, killing doesn’t matter; doing so allows the cells to continue participating in the larger experiment, from the petri plates to the notebook’s inscriptions. As with this lab, whose scientist perceive their killing without being affected, New Materialist literature likewise acknowledges ‘the condition of exteriority-within-phenomena’ (Barad, 2007:140) yet remains unaffected by those exteriorities; it performs its own bleaching by attending only to that which is produced. Bleaching, then, as the chosen process of disavowing, burning, or whitening, can help to ‘responsibly imagine and intervene’ (Barad, 2007: 246) through ethical agential cuts. It affords the ability to think on those mechanisms which are performed in service of the unbecoming and the production of non-materializable possibilities.

Contested Sonic Space: Settler Territoriality and Sonographic Visualization at Celilo Falls
Ashton Wesner, UC Berkeley

How do contemporary images mediate the production of American innocence in, and through, historical remembrances of US-Indian violence? How do we contend with the use of technoscientific images—such as LiDAR mapping, sonar surveys, and drone surveillance—toward seemingly contradictory ends: as tools to bolster both settler-state authority as well as native claims to land? From safari cameras and WWI hot air balloons, to the War on Terror’s unmanned aircrafts and “Curiosity” (NASA’s Mars Rover), scholars have contended with the violent consequences of power-laden visualization technologies and ocularcentric ways-of-knowing imbricated in projects of empire building, population control, and territorial exploration and conquest (Haraway 1997, Kaplan 2006, Earle 2014, Gregory 2014, Chandler, 2016). However, the role of sonar imaging technology—and its coconstitutive discourses—in US expansion, settler-nationalist claims to land and resources, and cultural imaginings, remains under-examined. Feminist scholars of biomedicine, disability, and technoscience have predominantly theorized sonar imaging as an instrument of visualization through sonography in the context of the body, gender, reproduction and subject-formation, but not in terms of land, space, or territory (Cartwright 1995, Haraway 1997, Taylor 2008). This paper draws from these literatures in order to contribute to the gap in the study of geophysical sonar imaging systems. Using a 2008 US Army Corps of Engineers sonar survey of flooded native land and fishery on the Columbia River, Celilo Falls, I analyze the production, circulation, and various political enrollments sonograms. I bring new materialist threads from settler colonial studies and feminist STS together to interrogate the work of geophysical sonar visualizations and discourses—from images of riverbeds to archeological digs—as political acts in sociocultural and legal contestations over the legitimacy and futurity of native claims to ancestral territory. I posit that sonograms of Celilo Falls contribute to the articulation of ocularencentricity, scientific expertise, and state authority in projects of settler-territorialization and American innocence.

I also argue that this framing alone misses the central role of sound and Columbia River Indian resistance in both constituting and contesting the sociopolitical life of the images. Thus, non-visual accounts and Native cartographies (Goeman, 2013) of the Falls must frame our examination of the potential spatial (re)organizations borne out of the sonograms’ enrollment in various constituencies’ political projects to claim control over Columbia River waters and the political economic regimes that govern its distribution.

Materializing Identity: Navigating, Mapping and Modeling the Terrain of Social Interaction
Mara Dicenta-Vilker, RPI

In the late 1960’s, new technologies unveiled powerful tools for re-visioning our world. The spectacular release of earth images from the Apollo 8 and Apollo17 missions revealed more than an image of ourselves from space, it also reframed our way of thinking about how we constitute ourselves, who we are. Today, we remain enthralled, enchanted even, by this “big picture”, in which we are happy to enclose our collective identities, as if in some virtual “safe space”. Yet is this really a safe space? The question is particularly pressing in the urban sphere, comprising more than populations or demographics, but citizens, some of who have simply fallen off the data map. As architects and designers, we assemble and disassemble artifacts and streams of data so that we may materialize; yet the challenge remains: how do we bring this abstract data into the design sphere, in order to engage actual individuals and create agency across a number of scales and situations? This paper follows the work of “Materializing Identity: Navigating Mapping and Modeling the Terrain of Social Interaction”, a design studio at Georgia Institute of Technology’s School of Architecture. It investigates how we bring this “big picture” into design problems that exist in an actionable context, and increasingly at the “intersection of the real and the virtual”. The studio extrapolates pertinent data in order to create frameworks of action, as a way of entering into the particulars of the “circumstances”, a fallow under-served zone within Atlanta’s periphery.

On the In/Sensibilities of Solar Energy
Marisabel Marratt, Georgia Institute of Technology

In the late 1960’s, new technologies unveiled powerful tools for re-visioning our world. The spectacular release of earth images from the Apollo 8 and Apollo17 missions revealed more than an image of ourselves from space, it also reframed our way of thinking about how we constitute ourselves, who we are. Today, we remain enthralled, enchanted even, by this “big picture”, in which we are happy to enclose our collective identities, as if in some virtual “safe space”. Yet is this really a safe space? The question is particularly pressing in the urban sphere, comprising more than populations or demographics, but citizens, some of who have simply fallen off the data map. As architects and designers, we assemble and disassemble artifacts and streams of data so that we may materialize; yet the challenge remains: how do we bring this abstract data into the design sphere, in order to engage actual individuals and create agency across a number of scales and situations? This paper follows the work of “Materializing Identity: Navigating Mapping and Modeling the Terrain of Social Interaction”, a design studio at Georgia Institute of Technology’s School of Architecture. It investigates how we bring this “big picture” into design problems that exist in an actionable context, and increasingly at the “intersection of the real and the virtual”. The studio extrapolates pertinent data in order to create frameworks of action, as a way of entering into the particulars of the “circumstances”, a fallow under-served zone within Atlanta’s periphery.

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This paper takes up the call to attend to in/sensible and indeterminate matterings in relation to solar energy, particularly the conversion of the superabundant forces of the sun into electricity through photovoltaic cells. It explores what in/sensibilities different forms of human habitation and collaboration with photovoltaics make available and forestall. Theoretically the paper brings together emerging feminist materialist work on technoeconomies and geopower. Work in technoeconomies develops the idea of an originary technicity of living bodies (Braun and Whatmore 2010) in ecological intra-actions. It submits that technicity is constitutively intertwined in ecological relations, and examines the generativity and exclusions of technoeconomic practices and ethos. Geopower focuses on the relations between the generative forces of the earth and living beings, and the sensations, orderings and indeterminacies created in particular encounters (Grosz 2012).
The paper draws on ethnographic fieldwork with minoritized communities that live beside the largest Czech photovoltaic power plant but were excluded from installation and maintenance work, and middle class households that have installed photovoltaics in their home. I examine what senses, percepts and thoughts are activated and muted through different forms of non-participation. These include sensibilities towards corporeal openness, the life cycles of polysilicon cells, the interconnectedness of solar energy producers and energy consumers through state subsidies, and concerns about climate change and interspecies flourishing. Examining practices of sensation and response-ability, the paper advocates holding together a focus on labour and the senses, on techno-ecological apparataxes and immaterial forces and reflects what this might mean for STS practice.

Toward a Marine Microbiopolitics with Microbial Hauntings

Astrid Schrader, University of Exeter

According to chronobiologist Susan Golden, “The great-grandchildren know what time great-grandma thought it was.” Golden does not talk about humans, but cyanobacteria or blue-green algae. Cyanobacteria are arguably the most successful organisms on earth; having created our atmosphere about 2.5 billion years ago, they still produce oxygen from sunlight and fix nitrogen. Photosynthesizing cyanobacteria also regulate their lively functions according to a daily light and dark cycle, even though they divide as rapidly as every 5-6 hours. How is that possible? How could microbes with a life span shorter than a day maintain a circadian rhythm? Why would anyone have a timer for a cycle that is longer than one’s lifetime? This is a clear case of haunting, manifesting a memory that is not locatable within a present individual. Haunting appears here not only between generations but also between the life of individuals and that of populations. Daily rhythms emerge in scientific observations, that is, when observing populations of bacteria. I argue that these bio-hauntings make explicit the contribution of scientific observation to the observed phenomenon. How may such a ‘material insensibility’ that I call bio-haunting complicate ethico-political agencies? In addition to exploring the significance of haunting for human-animal relations (after Jacques Derrida), this paper seeks to contribute to scholarship that rethinks Foucauldian biopolitics in less anthropocentric terms. Building on Heather Paxson’s notion of microbiopolitics, I seek to outline a ‘marine microbiopolitics’, asking what might an alternative version of microbiopolitics look like that takes seriously the hauntological (rather than ontological) existence of microbial collectives in the ocean.

Chairs:
Sigrid Schmitz, HU Berlin
Patricia Treusch, Center for Interdisciplinary Women’s and Gender Studies, Technical University Berlin, Germany

275. Technologies as Rubble? Destabilizing Narratives of Progress I

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 5 - Riverway

Many imagined that globalization would advance uninterrupted, thanks to new technologies, and would bring capitalist development to billions worldwide. To disrupt such technological determinism and reassess ongoing dynamics of global production/destruction, we propose to examine disused, abandoned, broken or obsolete technologies as “rubble” — as affective objects that continue to influence society and politics after their allure or usefulness has waned. Analytically, this means examining how such objects persist in affecting people differentially across social, geographical and cultural positions (cf. forthcoming issue of the Journal of Political Ecology). We borrow the concept from Gaston Gordillo. In Rubble (2014), Gordillo views the destruction caused by economic globalization not as ahistorical ‘debris’ nor ruins celebrated as evidence of progress, but as rubble embedded in cycles of production/destruction revealing how past injustices are lived in the present. For this open panel, we invite contributions that explore technologies as “rubble.” Among other questions, participants might ask how such an approach modifies narratives of “crisis progressive” or “delayed” development or imaginaries of renewal, invention, and global competitiveness; how to recognize technological rubble, or apply the term to technologies in use; how technologies succumb to political and social change, not just technological advance, yet can continue to have political power in their “afterlife”; how inequalities and injustices become justified within narratives of technical rationality and sophistication; or how seeing technologies as rubble highlights their means of enduring in a given context, a quality sometimes overlooked in analyses of technological circulation across time and place.

Participants:
Does the Rubble of SuperPhenix Shelter or Cast a Shadow on Astrid’s Cradle? Martin Denoun, GSPR/EHESS
The place of nuclear energy in France is unique, considering the electric mix (75-80 % of nuclear energy) and the links between nuclear technology and national glory (Hecht, 1998). The “fast breeder program”, promising an unlimited energy supply, was the occasion, for French engineers and policy makers, to take the lead in the international game. The construction of SuperPhenix, the bigger fast breeder reactor ever built, started in 1976. SuperPhenix was connected to the grid in 1986, and shut down by the government in 1997, after only four years of functioning, many incidents and increasing costs. In 2006, the presidency decided to fund the conception of Astrid, a new fast breeder reactor project. Meanwhile, the dismantling of SuperPhenix is expected to last until 2035 at least. SuperPhenix, and the whole fast breeder technology, is a controversial failure. Some claim that it’s only a political failure, others that it’s a technological and economical failure, and these qualifications weigh on Astrid. Its supporters suggest that the “rubble” status of the technology is reversible and that Astrid will show that SuperPhenix can be reborn from its rubble ; others never miss the occasion to link the future life of Astrid to the past life and death of SuperPhenix.

Drawing on interviews, on a corpus of articles and reports, and on the ethnography of conferences, this contribution will show that considering fast breeder technology as rubble sheds light on the tangible effects of the Superphenix afterlife on the new projects and their justifications.

Experimenting With Rubble in Agro-Industrial Amazonia
David Rojas, Bucknell University
A process of agro-industrial expansion that began in Amazonia decades ago, some Brazilian environmentalists argue, will create social and ecological crises that will intensify in the coming years. For these environmentalists, futures of “progress” or “conservation” (periods of time in which continuous improvements would take place) are now beyond reach. It is no longer possible, they contend, to think of the present as a time in which links with past troubles may be severed thanks to planned interventions. The need therefore arises, Amazon-based environmentalists argue, to experiment with the rubble of a “now” that is bent under the weight of an enduring, disruptive past. In order to carry out such experiments they work in partnership with agro-industrial farmers in southern Amazonia advancing projects designed to limit some of agribusiness’ ecological impacts. These experiments are intended to retrofit agro-industrial infrastructures in order to create material conditions that would allow environmentalists to continue working at a time in which past, present, and future no longer appear as stages of a linear, reassuring, flow. I introduce the concept “crisis progressive” to capture environmentalists’ skepticism about times of progress and conservation and the crisis-bound temporal orientation of their work.

Our Solar Debris Jamie Cross, University of Edinburgh
The highlands of Odisha, eastern India, are littered with broken, abandoned and disused solar equipment; from solar street lights and solar powered telephone systems to solar irrigation pumps and solar lanterns. Since the 1980s governments and development organisations have attempted to electrify this part of India with solar photovoltaic technologies. Today the legacy of these solar interventions is visible in the electronic waste - wires, circuit boards, inverters and batteries - that can be found in...
villages and homes. Here solar power is rarely perceived as radically transforming our future energy consumption, or reshaping our relationship to planetary boundaries. Instead, solar debris presents material evidence for the ways that historic patterns of injustice and inequality are perpetuated in their present. This paper examines the social and material politics of solar technology, drawing from writings on ‘rubble’ (Gordillo 2014) and ‘repair’ (Jackson 2014). Solar energy has emerged as a vital technology that is shaping our attempts to live in and with a broken world. Yet our attempts to engineer a transition to a low carbon future, in which electricity is generated by renewable technologies like solar photovoltaics rather than fossil fuels, remains committed to and embedded in capitalist systems of production and consumption in ways that reproduce familiar externalities and exclusions. Today’s solar debris is a product of global supply chains, low cost manufacturing and strategies of planned obsolescence in industrial design, and portends a future far less clean or green than that presented in contemporary narratives of a solar revolution.

The Affective Presence of Abandoned Technologies: Clouds, Cannons and Community Struggle in Highland Ecuador Tristan Partridge, UCSB, Anthropology

This paper considers controversial technologies as forms of what Gaston Gordillo calls “rubble” in order to explore how and why they may exert an affective social presence even after they have been destroyed or abandoned. I examine community responses to the use of atypical agricultural technologies by broccoli plantations in Ecuador’s central highlands. I argue that subsequent community mobilizations and related conflicts, claims and counter-claims reveal fragility within apparently immutable political systems and in persistent patterns of destruction. The technologies at the center of these conflicts – acetylene ‘cannons’ designed to disperse clouds and thus prevent damage to crops from hailstones – were locally disruptive to weather patterns, agriculture, and everyday life. In response, diverse coalitions of nearby rural and indigenous communities collaborated with regional offices of the country’s national Indigenous Movement and launched campaigns to have these controversial technologies outlawed. Drawing on ethnographic fieldwork in the region, I relate these community struggles to local structures of inequality that govern the distribution of land and water. Although the original conflict ended in 2010, at the start of 2016 the plantations were blamed for an unseasonable drought and many community-members alleged that new technologies were being used in the destruction of clouds. I engage with Ansel Stoder’s writing on “imperial debris” and processes of “ruination” to interpret these events in terms that relate to other technological conflicts that involve shifting assemblages of rights and relations between technology, identity, and environmental justice.

Chair: Javiera Barandiaran, University of California, Santa Barbara

276. Toxicity and Global STS

Traditional (Closed) Panel
9:00 to 10:30 am
Sheraton Boston: Floor 5 - The Fens

Toxic substances have long been a productive field of analysis in science & technology studies. STS scholars have studied the production of knowledge and ignorance about the proliferation, risks and effects of toxic substances. The scholars have analyzed efforts to control and remediate toxicity by state actors, environmental justice and other activists, and attempts to thwart such efforts. This long-standing engagement with toxicity has resulted in seminal contributions to STS, including Sheila Jasanoff’s work on science, expertise, and democracy; Michelle Murphy’s studies of uncertainty and alter-life; Gabrielle Hecht’s book on nuclearity; Adriana Petryna’s concept of biological citizenship; and Kim Fortun’s analysis of transnational environmental advocacy in late industrialism. While STS has advanced the understanding of toxicity, the study of toxicity has advanced STS. This session convenes scholars who study toxicity in the Americas, sub-Saharan Africa, South Asia, and Europe. The papers analyze the production, proliferation, consequences, and identification of toxic substances as well as their embodiment, control and remediation. Studying sites of mining, building removal, disaster, and food production and trade, each paper inquires into the ways in which scientific, economic, and political processes that have shaped toxicity and its effects across Global North and Global South. The papers interrogate how toxic contamination has enabled or disabled such connections and processes. Building on those seminal contributions, this session seeks to foster a conversation about studying toxicity in postcolonial contexts and the tools of STS, those at hand and those to be developed, for such global analyses.

Participants:

Quicksilver's Child: Mother-to-Infant Transmission of Mercury Toxicity Ruth Goldstein

Mercury, Hermes, or quicksilver has seeped into the psyches of philosophers and emperors, mad-hatters, sushi-eaters and cavity-fillers. It can "move" through the body, passing the blood-brain barrier, swim through amniotic fluid, and change the body chemistry of all living organisms. Concentrating on mercury in its material and conceptual form, this paper traces the heavy metal’s effects on climate change and fetal-maternal health in the Peruvian and Brazilian Amazon. With global contamination levels rising, the United Nations Environment Programme convened the 2013 Minamata Convention. The subsequent treaty aims to reduce human and environmental exposure, by eliminating the heavy metal from pesticides, gold mining, pharmaceuticals, and factory emissions. Some regions of the world lend themselves to specific kinds of (molecular) investigations. In this frontier Amazon region different kinds of analyzing and imaginings about (human) nature emerge. Dubbed "El Dorado" for its gold-flecked soil, miners extract the shiny particles with liquid mercury. The ecological impact has alarmed environmental engineers and social scientists that this will result in losing the “lungs of the earth” and “nature’s pharmacy” – the Amazon rainforest. While quicksilver's effects on the landscape have marked visibility, its impact on human health is not always so easily detected, except in childhood and fetal development. Through the figures of the mother-and-child and of nature’s body - gendered female, public health officials and environmental scientists, call for eliminating the mercurial "body burden" placed on human and nonhuman bodies, for a less toxic future.

“Tiny Threads”: Building Demolition and Toxic Remediation in Detroit Nicholas L. Caverly, University of Michigan, Ann Arbor

Since 2015, more than 10,000 “vacant and abandoned buildings” have been demolished in the City of Detroit under orders that they pose a risk to the health and safety of surrounding residents. 10,000 more are set to be razed by 2018. Government administrators, researchers, activists, and others highlight how removal literally clears away traces of Detroit’s entwined histories of uneven industrial development, racialized exclusion, and environmental inequality. Eliminating such structures, some argue, is critical for developing a more equitable, sustainable, ‘post-industrial’ future. Nevertheless, as workers use excavators and other equipment to render buildings from foundations into landfills, their jobsites are monitored by environmental and occupational health regulators concerned that highly-mechanized demolition practices may turn otherwise benign building components into aerosolized toxins. Their main focus is asbestos – a known carcinogen composed of “ Tiny threads” measuring no more than five microns – which formed the basis of much insulation, roofing, and flooring before 1990. Indeed, efforts to contain building removal emissions are predicated on industrial regulations targeting asbestos production and installation. To this end, following how these tiny threads weave through safety trainings, regulatory reports, and swirls of worksite dust illuminates how removing the remains of Detroit’s built environments reorganizes – rather than eliminates – the industrial materials and logics embedded in their construction. In particular, as those who labor in and live alongside demolition sites are typically poor and people of color, examining demolition demonstrates how reforming toxic traces of
historically-situated inequalities can also generate freshly unequal circuits of exposure. Methyl Isocyanate Gas and the Molecular Physiology of an Industrial Disaster Deboleena Roy, Emory University This paper addresses some critical questions raised by feminist and postcolonial STS scholars regarding the effects of chemical toxicity and the processes of distributed reproduction. Specifically, the paper turns to a case study of the chemical compound methyl isocyanate (MIC) and the gas leak tragedy that occurred in 1984 at the Union Carbide Corporation’s pesticide plant in the city of Bhopal, India. Survivors of the gas tragedy still experience MIC-related reproductive health issues and there is evidence to suggest that residual chemical contaminants in the soil and ground water, left behind after the disaster, continue to impact the residents of Bhopal. Recent scientific evidence further suggests that MIC-mediated epigenetic effects may expose Bhopal Gas Tragedy survivors and current residents to increased risks of cancer. Alongside these findings, there has been a rise in reproductive tourism and in vivo human labor in Bhopal through the growth of assisted reproductive technology clinics and surrogacy services made available here. In order to better understand MIC’s degenerative as well as generative capacities as a chemical and physiological actant, this paper traces the breakdown of Bhopali survivors’ reproductive bodies, their chromosomes, and their bodily fluids due to MIC exposure, and simultaneously examines the embryonic development of new fetal bodies through genetic materials and proteins provided by mothers and surrogate women. The aim is to study the compound MIC as a catalyst for distributed reproduction and to explore what the phenomenon of maternal-fetal microchimerism can tell us about the transplacental migration of biopolitics.

“A War Without Violence”: Humanitarian Politics and the Flint Water Crisis Elena Sobrino, Massachusetts Institute of Technology (MIT) Residents of Flint, Michigan are navigating the toxicity of lead throughout an ongoing water crisis. In April 2014, a decision to use the historically industrialized Flint River as a drinking water source without adequate corrosion control resulted in the leaching of substantial amounts of particulate lead from the aging pipes that service the city. In the words of one Flint resident, the water crisis has felt like “being in war, but without violence.” Based on the analysis of news media and ethnographic observations, this paper argues that one way the “slow violence” (Rob Nixon) of toxicity in Flint materializes is through the temporality of humanitarian crisis. Living with lead contamination and the infrastructural violence of an unsafe water system is a uniquely embodied experience mediated by class, race, and Flint’s history of deindustrialization and economic insecurity. This paper engages with the work of scholars like Didier Fassin, Michelle Murphy, James Scott, Adriana Petryna, and others to scrutinize how the ethos of global development and logics of legibility in both scientific and state practices are at work in Flint. Throughout the contested process of measuring the contamination of water and assessing the best measures for recovery, experts and policy makers often rely on the discursive framing of “crisis,” “emergency,” or “disaster” to bracket their practices. The intersection of austerity-driven techniques of governance with the rhetoric of emergency has blurred the boundaries between public and private, governmental and non-governmental, and technical and political maneuvers.

Aflatoxin and the Global Scale of Toxicity Lucas Melvin Mueller, Massachusetts Institute of Technology (MIT) STS scholars have often focused on specific sites of toxic contamination and exposure (Petryna, Murphy, Fortun) or on regulatory frameworks within specific polities (Jasanoff). This paper develops the concept of model molecules to analyze the transnational and international study and control of aflatoxin, a carcinogenic toxin produced by molds that grow on food and feed crops in tropical climates. After its discovery in 1960, aflatoxin became the central object of a network of scientists and public health officials, concerned with toxic substances in international health, trade, agriculture, and development, across Europe, sub-Saharan Africa, United States, and South Asia. Based on archival research, this paper traces this network’s epidemiological and toxicological studies. They sought to determine aflatoxin’s effects on human and non-human animals. Building on STS studies of toxicity and scholarship on model organisms in the biological sciences, this paper considers aflatoxin as a model molecule aflatoxin from its discovery to the 1990s. The studies on the model molecule aflatoxin set a paradigmatic example for the study of toxic substances, and provided a structure that would shape interdisciplinary research, transnational control regimes, and their institutions. Aflatoxin, seen as inherently transnational, also legitimized the formation of these international networks of expertise in development, agriculture, nutrition, and commodity trade. The analysis of model molecules like aflatoxin thus provides a conceptual framework to understand toxicity across regional, national, and global scales.

Chair: Kim Fortun, University of California Irvine Discussant: Kim Fortun, University of California Irvine

277. Foraging/Walking Tour: "Eating Humans: Eating into Future Cosmologies" Special Event 10:00 to 11:00 am Sheraton Boston: off-site event Matthew Friday, Iain Kerr, and Petia Morozov are members of the art collective “spurse” (http://www.spurse.org/). Join them on a walking tour of the immediate neighborhood surrounding the conference venue, during which they will demonstrate ways of exploring and eating the world based on their "EAT YOUR SIDEWALK COOKBOOK" project. In the artists’ words: "How we eat is inextricably linked to how we think. How can we evolve new embodied and enactive eating practices to disrupt our current world views and allow for new ones to emerge?” Meet in front of the Starbucks in the lobby of the Sheraton Boston at 9:50 for a 10:00 sharp departure. Registration requested: http://tinyurl.com/9y9ocd4 Participants should be prepared to walk about 1.5 miles on streets, stairs, ramps and trails, wearing footwear and outerwear appropriate for these conditions. Please note that there may be areas of the tour that are not wheelchair-accessible. If you have concerns about accessibility, please contact Jia Hui Lee at jiahuil@mit.edu by August 28 so that we can make every effort to accommodate your needs. This program proceeds the affiliated luncheon workshop "Ingesting the Informational Imaginary,” where foraged artifacts will be served.

Chairs: Rebecca Uchill, University of Massachusetts, Dartmouth Iain Kerr, spurse Petia Morozov, spurse Matthew Friday; spurse

278. Coffee Break Break 10:30 to 11:00 am Sheraton Boston: Foyer

279. Citizen Science II: Agencies, Participation and Control Across Communities Traditional (Closed) Panel 11:00 to 12:30 pm Sheraton Boston: Floor 3 - Beacon A Citizen science constitutes a rich and fast-evolving arena in the production of scientific knowledge, raising questions that speak to the core of STS scholarship. In its various forms, ranging from expert-driven crowdsourced and participatory sensing models to citizen-driven social and ecological justice initiatives, citizen science offers a rich empirical setting. This track will expand the dialogue around this growing practice of knowledge creation through traditional and cutting edge STS perspectives. Building on STS scholarship exploring the sociomaterial construction of scientific knowledge across settings and methods, we invite researchers to unpack
citizen science’s spoken and unspoken sensibilities. Relevant themes include the entanglement and evolution of technologies and communities in citizen science; the influences of policy, technology, and professional scientific communities on emergent practices of knowledge co-production; the production of novices and experts, and how roles in citizen science are defined and negotiated, tracing information flows between contributors and project leaders; how stakeholders attempt to shape volunteer contribution to fit a particular need. The (in)sensibilities of peer production; how data quality is constructed and reconstructed; and how both formal and informal data quality standards are embodied in practices, technologies, and social structures. Beyond questions of building and deploying citizen science practice, we also invite research that examine how stakeholders resist or repurpose existing models in order to meet their personal needs, the role of traditional and local knowledge in “Open Source Science,” the impacts of scientific disciplines and scientific methods on the perceptions of citizen science practices and products.

Participants:

Designing “Open Science Hardware”: From Community Spaces to Open Laboratories? Luis Felipe Rosado Marullo, CNAM/IFRIS

“Open Science” is one of the contentious terms of contemporary academic debate regarding the conditions for accessibility, transparency, reproducibility, and extensibility of global scientific production. This term has been extended more recently to encompass practices of “hardware hacking” under the rubric of “Open Science Hardware”. In this paper, I discuss the sociotechnical production of Open Source-based scientific instruments with a focus on exchange and boundary-making practices between scientific laboratories and community-based projects (conducted at “innovation laboratories” such as IdeaSquare at CERN). Based on ethnographic field research, I describe how expert knowledge of scientific resources (such as hardware, software, and data) is produced, contested, and negotiated at the intersections of scientific and community projects. In the past seven years, CERN has become a very important sponsor of “Open Source Hardware” by endorsing its development publicly and creating several initiatives, such as the sponsorship of a Free Software-based circuit design tool (“KiCAD”), development of high-performance network standards and protocols for scientific precision instrumentation (“White Rabbit” project), publication of the influential “CERN Open Hardware License”, and design of digital technologies for research in particle physics which are distributed at the “CERN Open Hardware Repository”. As a concluding argument, I elaborate on the importance of addressing the interconnections, “cooperative” dynamics, and frictions between scientific laboratories and community spaces for the study of emergent technical infrastructures and epistemic objects. I suggest how STS can help us navigate and make sense of emergent technopolitical formations with scientific and public partnerships which are mobilized to dispute established IP-based policies for technology transfer, having important consequences not only in how science is practiced, but also scientific infrastructures for global science collaborations are built, maintained, and extended.

Sealing Up and Rolling out through the Web: The “Platformization” of Citizen Science and Scientific Citizenship Niclas Hagen

The purpose of this paper presentation is to investigate online public participation and engagement in citizen science and scientific citizenship through web-intermediaries. In order to fulfill its purpose, this paper will use the web-intermediary Zooniverse as a case study, as it constitutes the most prominent and established web-intermediary today, and it intends to answer the following research questions: How are public participation and engagement in science mobilised on Zooniverse? Can Zooniverse be understood as novel form of citizen science and scientific citizenship? What relation does this novel form have with previously understood? The paper intends to give a contribution to the STS-field through its investigation on how citizen science and scientific citizenship are transformed by such web-intermediaries as Zooniverse. The theoretical framework of the paper consists of notions produced within STS, as well as within such emerging fields as platform studies and software studies. The point of departure for the analysis performed is that Zooniverse constitutes a digital platform, which contain a simultaneous movement that on the one hand distributes or decentralises forms of autonomy to its users while, on the other hand, also standardises or re-centralises the conditions of communication among its users, thereby drawing many actors into a common architecture. The analysis suggests that the mobilisation of individuals who participate and engage in science on the Zooniverse platform takes place through this simultaneous movement of de-centralisation and re-centralisation. Moreover, the paper also suggests that Zooniverse constitutes a novel form of citizen science that revolves around produsage rather than scientific citizenship.

The Culture of Contribution in Citizen Science: Programs and Anti-programs Dick Kasperowski, University of Gothenburg; Thomas Hillman, University of Gothenburg

Citizen science projects are often designed to minimize learning as a necessity for mass mobilization, however such processes are outside the control of owners of projects. Projects aiming for scientific output (peer-reviewed publications) must have an instance in the scientific process were citizens are constructed as on par with scientists to assure data quality. These instances are often situated in the participatory protocols (programs) harnessing some kind of ability of the crowd, which make their participation and contributions valid for scientific work. At the same time, citizen science projects also uphold boundaries between citizens and scientists. Intuitively, this might not be necessary as scientists by their professional training have abilities beyond what is possible for volunteer contributors. In practice such boundaries are not so clear. The aim of this paper is to explore when and how such boundaries are challenged as learning is occurring on behalf of contributors in citizen science projects. The purpose is to illuminate the relationship between the citizen scientists as constructed as contributor to science with specific, but static qualities (programs), and the development of contributors over time (anti-programs). Data consists of interactions between researchers and contributors on discussion forums of citizen science projects.

Parasite Labs: Laboratory Protocols of Do-It-Yourself Biology Jonathan Clack, Philadelphia University

My work examines and documents the workings of DIYbio (do-it-yourself biology), a loosely-affiliated global group of “amateur” biological researchers, and the ways in which they construct their laboratories, produce new scientific methodologies, and change what it means to be a scientist. I argue that the laboratories that DIY biologists construct are materially and conceptually “parasitic” on institutionalized science: they are structured through deep connections to the traditional places and spaces of scientific practice, and differentially reproduce them through the development of adjacent scientific practices. In the creation of and the elaboration of meanings about these “parasite labs,” DIY biologists develop new means of producing biological knowledge and produce material critiques of contemporary institutional science, and also operate as a frontier for the future of biology. I seek to answer three questions about DIY biologists: how do they affirmatively refigure what it means to be a scientist; how do they differentially reproduce the contents and contexts of laboratories; and how do they alter scientific knowledge, its meanings, and its means of production? I draw upon four years of participant observation fieldwork across two primary sites and many conferences and meetings to answer these questions, and to also describe the emergent cultures of DIY biology. My ethnographic work is supplemented by an analysis of electronic discussions that DIY biologists use to record their methods and disseminate their findings, popular culture and print/electronic media which shape the particular historical moment in which DIYbio has developed, and historical literatures on “amateur science” which provide comparative accounts of conflicts over who may produce
Two Monolithic Entities Meet and Communicate Through a Third: Human-Computer Interaction in Citizen Science

Nicolas James LaLone, Pennsylvania State University

The nature of agency and rigor within computationally mediated, data oriented citizen science initiatives has come under scrutiny. From the scientific community, there are discussions about the place of citizen-created data. The variance and danger of untrained citizen scientists making decisions about data are too risky to accept as scientifically viable data. For others, the data is accurate, cheaply and useful as long as the decision-making and agency is kept to a minimum. In either case, the data provided by citizen science initiatives that use applications to mediate their citizens are little more than a representation of scientist understanding of human-centered design. Alan Irwin stated that Citizen Science is the meeting of two monolithic entities (Irwin, 1995). The first is citizen understanding of science. Science literacy has long been a goal of citizen science and in working with scientists themselves; citizen science is a way to interface with literacy in society directly. The second monolithic entity is scientist understanding of citizens. While science literacy may be a goal, how well do scientists understand non-professionals? From a science and technology perspective, scientists are trained how to do science, not to communicate with non-professionals about it (Medin and Bang, 2014). This answer can manifest through the affordances of the software that mediates the space between these two entities. As such, this work introduces a third monolithic entity - human-computer interaction or software design. To manifest that entity, we index the list of things citizen science software allows its users to do (often called affordances) within citizen science initiatives of the virtual type (Wiggins and Crowston, 2010). We find that those projects that provide a means of communication with the scientific collaborators, allows users to point out mistakes in the classification scheme and questions about particularly difficult samples (thus raising accuracy). The trade-off is that by allowing the citizen scientists the affordances to communicate, communities form that can become gated and aggressive. The navigation of social capital and moderating an enthusiast community can become more important than the project itself.

Chair: Nicolas James LaLone, Pennsylvania State University

Discussant: Gwen Ottinger, Drexel University

280. If Not Now Then When: STS and Critical Race Theory

Traditional (Closed) Panel

11:00 to 12:30 pm

Sheraton Boston: Floor 3 - Beacon B

In an era of colorblind racism, using the category of race is widely decried as racist; for example, including race as a factor in college admissions is seen by some not only as no longer necessary but as a form of “reverse racism.” Shamefully, in Science, Technology, and Society, with a few notable exceptions, race and new racial formations are at best under-theorized and at worst, simply ignored. There is no excuse for race to continue to be sidelined in STS scholarship and institution-building. Artifacts, boundary objects, trading zones and laboratories still fascinate us, at a time when science is increasingly being conducted outside laboratories by street scientists, many of them people of color. We include primates, scallops, dinosaurs, and sheep in our analysis, and yet we rarely include by street scientists, many of them people of color. We include primates, scallops, dinosaurs, and sheep in our analysis, and yet we rarely include

Participants:

Constructing Insignificance? Applying Critical Race Theory to Scientific, Regulatory, and Legal Failure in Environmental Justice Communities

Lauren Richter, Northeastern University

Science and data are central tools in identifying and evaluating the existence of adverse environmental effects. Expert knowledge acts as a gatekeeper to scientific, regulatory, and legal institutional recourse for residents of highly polluted communities. Drawing on a case study of a contested birth defect cluster in Kettleman City, California, this paper deepens scholarship on environmental injustice and STS by examining how structural racism produces both disparate exposure and failed institutional recourse in marginalized spaces. Approaching environmental injustice from the perspective that disproportionate exposure is a deviation from an otherwise just norm, risks assuming equitable and inevitable societal progress. Alternatively, environmental injustice could be characterized as a norm, not an exception. Drawing on perspectives from critical race theory, I ask if Mills’ (1997) “conceptually invisible space” might also be “scientifically or legally invisible space.” Are regulatory frameworks “failing” in certain spaces for certain populations? For whom do our regulatory frameworks function? This paper identifies key structural barriers for recourse and redress in highly polluted environmental justice communities, while examining the impact of seemingly functional regulatory frameworks on the consciousness and environmental health of favored subjects and spaces.

Fade to White: The Disappearance of Black Hunger in American Socio-Biological Science

Kelly Moore, Loyola University Chicago

Starvation and hunger, overt and tacit, have long histories as a political tool, but their measurement and management by governments is relatively recent: the World Health Organization, using data produced in part by Nazi scientists and by colonial plantation managers, established minimum dietary requirements for various kinds of bodies in a 1956 publication, and by the science of starvation. In the USA, these sorts of problems were largely thought to be elsewhere, until the problem was made visible in the USA not by graphs and figures, but by the images of starving children produced by civil rights workers in the southern part of the country during the middle of the 1960s. Very quickly, a new bio/social science investigating the prevalence, causes, and physical effects of starvation and a parallel emotional/physical state—hunger—developed. Hundreds of scientific papers tracing the effects of starvation appeared, panels were convened, and a new Senate Subcommittee heard testimony from medical and political specialists, who recommended changes in the country’s food aid system. Yet the sociotechnical study of the corpo-reality experience of black hunger—the experience of too little—faded quickly in the 1970s, replaced by a very different technosocial corporeal preoccupation: the fat American who was “at risk” if they did not address the problem through the application of scientific knowledge. This typical American was an imaginary that during the mid-twentieth century always meant white people, whose well being was associated with the public good. The move from too little to too much was thus a shift from black to white subjects, and the immediacy of suffering from hunger was displaced by in favor of temporalities of future “risks” from being fat. Hunger still appears of course, but in a more ghostly fashion, jumping out of a campaign for school lunches, appearing in shadowy form in a plea for food bank funds, and even more rarely, in scientific papers. This paper interrogates two sorts of fasting—from black to white, and from a central topic to a pale backdrop, in the sociotechnical analysis of hunger. I show that a critical socio-technical move that made this possible was to remove the suffering black body from analysis and vision, and to shift the focus to a socioeconic analysis of food supplies, captured by the militarized humanitarian language of “food security” that was envisioned as a “global” issue. To do so, I examine the genealogy of hunger and food security, with a particular focus on the role of the US Department of Agriculture and the World Health Organization in the erasures the sufferings of black people who are far more likely to be hungry than whites, while being targeted by sociotechnical sciences for being too fat.

Operating and Operationalizing Race: Racial Projects in
Cosmetic Surgery: Alka Menon, Northwestern University

When and how do certain procedures or physical features come to be associated with race/ethnicity in cosmetic surgery? Drawing on interviews with cosmetic surgeons in the U.S., Malaysia, and Singapore, observations of four international cosmetic surgery meetings (two in Asia, two in the U.S.), and a content analysis of English-language procedural guides written by cosmetic surgeons worldwide, the paper identifies three competing “racial projects” at work in global cosmetic surgery: racial binarism (white-only/white), colorblindness, and multiculturalism. The study shows how surgeons strategically draw on each of these racial projects in attempts to communicate across regional or national boundaries, increasing their international visibility and promoting scientific/biomedical recognition and exchange. That is, the study investigates conditions under which academically minded cosmetic surgeons racialize or ethnize their clinical findings in order to make them legible to broader audiences, amidst ongoing efforts to establish new, more scientific standards of evidence in the field. The findings suggest that a broader comparative approach to understanding cosmetic surgery helps contextualize possible different surgical outcomes with respect to race, and draws attention to the importance of attending to specific procedures in making visible racial motives. Ultimately, the paper brings Omi and Winant’s concepts of racial projects and racial formations to science and technology studies’ use of biomedicization, evidence-based medicine, and tacit knowledge in the case of global cosmetic surgery.

Trading Zones and Cultural Differences: An Anti-Racist Approach to Computer Science Education Research
Michael Lachney, Rensselaer Polytechnic Institute

In 2017, Betsy DeVos was confirmed as US Secretary of Education. DeVos has a history of philanthropic support for “colorblind” education policies in Michigan, including policies for charters and “choice.” However, research suggests that these policies are anything but racially neutral and instead contribute to dismantling the wealth of Michigan’s African-American communities. These circumstances necessitate a heightened vigilance against reproducing colorblind perspectives in educational research, especially in academic subjects where students of color are already underrepresented. Using anti-racist visual programming software as a case study, the STS concept of “trading zones” is shown to be useful for challenging colorblindness in computer science education. This paper builds on previous theory-work in computer science education that employs the concept of trading zones to build interdisciplinary standards for research. It argues that while standard making may create a creole discipline where trading partners have a new and shared vocabulary, this may also unintentionally act as a form of assimilation by smoothing over and diluting differences between culturally distinct groups and domains of practice. Alternatively, this paper demonstrates the strengths of pidgin trading zones—where exchange is possible but differences are maintained between trading partners—for fostering inclusivity. Rather than assume computer science education can be racially neutral, it is demonstrated that educational software can be explicitly designed and implemented to confront ideologies of colorblindness by framing cultural and community differences as assets to build upon rather than barriers to be overcome.

Chair: Michael Mascarenhas, Rensselaer Polytechnic Institute

281. Can the Subaltern Research? 1
Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon D

This paper questions research on “the subaltern” by focusing on processes whereby established theory can reinscribe acts of domination and erasure of options, in a variation on Spivak’s query, “Can the Subaltern Speak?” (1988) We point out three possible entry points: 1) The subaltern researcher. Xavier Polanco (1985) used the expression “domestic brain drain” to identify “a cognitive position assumed by Third World and Latin American scientists, who without emigrating from their countries guide their scientific work in terms of research fronts, reward systems and publication of developed countries.” The ambivalences between simultaneously copying and rejecting the models of European civilization often lead subaltern colonized-colonizers who are approaching modernity to a hindrance. 2) Dialogue with the subaltern. A second entry point comes at the intersection of two seemingly accepted claims within the STS community: “science is capable of dialogue only on its own terms,” and “a respectful enough story is all one needs to go to trial with.” The first will require that subaltern claims to knowledge be expressed and subjected to evaluation following scientific practices. On the second, “respectful enough” means producing a set of inscriptions which, by means of their juxtaposition, stabilize the status of an entity that is, as something formed by a detachment from of the flux of (an ever moving) reality. 3) Conflicts and limits of authority. A third entry point would be any situation where there is a conflict between the authority of scientific knowledge or fact and the authority of a local popular non-expert knowledge that scientists classify as “mere belief.” On the one hand, the (colonizer) scientist, engineer or project manager is clearly privileged in determining the scientific or technological reality of what is at stake. On the other hand, subalterns may resist and evade the definition of their reality by others in numerous and sometimes quite effective ways. The panel thus welcomes any research that investigates the stakes and dynamics in such encounters between expert and subaltern knowledge and realities.

Participants:
The Politics of Science, Technology, and Development: A View From India towards the World
Shobita Parthasarathy, University of Michigan

India is a lively experimental space for initiatives that use science and technology to alleviate poverty and inequality. The government and domestic NGOs sponsor creative efforts to develop traditional knowledge for the contemporary world, seed innovation and entrepreneurship among poor and marginalized communities (especially women), and encourage scientific and technological literacy as a means of political empowerment. Meanwhile, entrepreneurs and universities are developing technologies for the “base of the pyramid.” Many of these initiatives are indigenous, blossoming in a country with ancient knowledge traditions, respect for makeshift innovation (in Hindi, jugaad), and a significant science and engineering workforce. Others are promoted by Western development agencies and international institutions like the World Bank and OECD. What are the epistemologies, and ideologies, of each of these approaches? Do they happily coexist, and where do they come into conflict? What relationships between science, technology, and power do they embody? Why do some of these approaches influence international expert discussions regarding science and development, while others receive no attention or validation at all in the global context? And what does that tell us about the politics of subaltern science and technology? This paper explores these questions through a two-part analysis. The first is a critical inquiry into efforts to use science and technology to alleviate poverty and inequality in India. The second focuses on how and why some of these schemes are understood as acceptable and viable interventions in international discussions, while others are not. Here, we see conflicts between subaltern and Western modes of knowing and evaluating, which have enormous consequences for India’s—and potentially the world’s—poor.

A Meeting on the Amazon Biotechnology Center - a Sociotechnical Approach Silvia Vaiburd, COPPE - UFRJ

It was a hot, humid morning in Manaus, a city placed in the middle of the Brazilian Amazon rain forest. Twenty researchers and administrators gather under a nearly polar temperature provided by an air conditioner at full steam. The diversity of professional profiles mingled biologists, chemists, physicists, physicians, engineers, information technology staff, accountants, public administrators. All aimed to reach the goal of boosting the Amazon Center for Biotechnology (CBA). The CBA intends to bridge the gap between local indigenous knowledge and luxurious nature, on the one side, and the academic environment...
of universities, research centers, the Brazilian manufacturing efforts and international interests, on the other. Furthermore the Sober Center aims to become a local authority of scientific knowledge. This tank of diverse knowledge (academia, society, natives) - which dwell in the forest – seeks to establish an obligatory passage point where knowledge and practices rooted in local society meet the great national scientific and industrial project. The confluence of knowledge in the meeting resembles the ‘Meeting of the Waters’ of the Rivers Negro and Solimões in the Amazon: of different colors and textures, the meeting highlights evident demarcations between actors and their visions of the same facts and artifacts. Dialogues are a blend of unstable equilibrium. In these attempts of convergence, we can see how tortuous negotiations seek to approximate the immensity of the forest but still they are faced with difficulties to deal with a cartography where a mixture of life diversity and knowledge heterogeneity abounds. This study approaches some of the controversies raised in a meeting that took place in September 2016.It is based on various authors in STS studies, mainly Laymert Garcia dos Santos on biotechnology and Amazon.

The Academy and Design as “Insensitizers” of Artisanal Production: Reflecting Their Tensions Based on Cases from Brazil Paula Maria Areias de Freitas, Universidade Federal de Itajubá; Lauren Ferreira Colvara, Universidade Federal de Itajubá

This paper proposes to discuss the insensibility found at design-craft relation. Aiming tensions among knowledge fields: crafts, design and academy. The first problem is the technical approach of Design that ignores the sensible of manual making and social-historical context that 'make' knowledge. By the other hand, the academic scientism imposes methodologies over 'know' and 'make'. Both design and academy are aspects that make craft insensible. By the perspective of social constructivism, the way to academically notice scientific and technological changes, because of understanding it from external factors (culture and history), the training perception of the living aspect, the to craft. From case studies it is possible to understand how insensibilities of these fields affect artisanal way of production and so, to track ways to make this relation more horizontal and effective.

The Subaltern and Physics: Reconstructing Observers Chanda Prescod-Weinstein, University of Washington

I posit that to constitute a concept of “physics community,” physicists assume two foundational axioms. First, the laws of physics are independent of cognitive inference/interference and therefore unchanging or only evolving according to their own rules, despite the findings of Science, Technology, and Society Studies (STSS) over the last few decades. Physicists nonetheless cling to this assumption, which I posit leads to the next axiom: the subaltern can be a subject of scientific research, but it cannot itself research. This knowledge inequation has epistemic and ontological implications for both science and communities who trace their origins to the Global South and Aboriginal American communities. Because the subaltern is persistently axiomatically defined as outside of mainstream definitions of “physicist,” we become saddled with the difficult work of self-constructing as physicists while remaining, through external construction, outsiders to the physics community. I argue that these axioms indicate that science cannot be objective when the language embedded in it works to unconstrout Black women as physicists. By excavating Black intellectual history and pairing it with currents in STSS, I will consider the epistemic implications of colonial, exclusionary ontologies of “physicist,” with the aim of clarifying how an historical and contemporary reconstruction of observers changes both physics and physicists.

Future Fire: Knowing and Making Pyrogeographic Risk Timothy Neale, Deakin University

Humans are ‘fire creatures,’ as Stephen Pyne suggests, that have used off-site fire (also known as wildfire or bushfire) for millennia to shape local environments to diverse purposes. Our capacity for combustion has also forced global climatic changes and rendered the planet increasingly flammable, creating the conditions for progressively larger, more intense and higher impact wildland fires now and into the future. Meanwhile, governments in fire-prone countries such as Australia have continued to allow human settlements to be established (and re-established) in those zones, known as wildland-urban interfaces, where lively organic ‘fuels’ and human homes intermingle. Like other ‘natural hazards,’ fire is thereby an intractably social and cultural phenomenon, bound up with human values, practices and decisions. We are ‘fire creatures’ not simply because we are uniquely capable in utilising it, or view it as a polysemantic phenomenon, but also because we dwell in it and with its conjunctures, often in perilous proximity. Couched in terms of technical acuity, and paralleled by the ‘emergency’ discourse of a burgeoning fire-industrial complex, the ‘management’ of this hazard in Australia has been progressively framed bushfire as preventable by the state. State agencies, as Australia’s Prime Minister recently avowed, ‘keep us safe in the face of the inferno’. This contrasts with the opinions offered by most scientific researchers, who have revealed the limited efficacy of existing preventative and response measures, while also documenting the ecological and financial costs of these strategies. Now, aspects of these anticipatory regimes are within a moment of ‘calculative rearticulation’ in which new forms of modelling have put the question how we know, predict and manipulate the parameters of future fires. In this paper, I will present a critical analysis of the dominant forms and content of fire’s governance in Australia over the past several decades, before examining some of the alternate ontologies made visible in the present moment. Drawing on ethnographic work with fire practitioners in two Australian field sites, I suggest that present modes of anticipating and intervening in fire’s future are making pyrogeographies inimical to their ostensibly ends – that is, the sustainability of human life.
Something has changed in the way we bring innovation to bear on societies' challenges. As innovation has turned into a global policy imperative and domain of technical expertise ripe with ready-to-hand instruments, models, and “best practices,” there is a growing tendency to frame all societal problems as innovation problems. We are unable to address grand challenges like climate change or poverty and ensure the economic competitiveness of our nations – so the logic goes – because our societies and institutions are not sufficiently geared towards innovation. In this paper, we analyze this “deficit model of innovation” in which an innovation imperative is routinely mobilized to generate diagnoses of deficient social institutions – e.g. the state, universities, policies, science etc. – and to justify major political and institutional interventions, following parallels to STS research on the “deficit model of public understanding of science” (PUS), we develop a theoretical framework that captures salient elements in deficit diagnosis in innovation. We apply this framework to three empirical case studies – innovation strategies in Luxembourg, Singapore, and Denmark – to illustrate how the modalities of the deficit model vary across political, cultural, and economic contexts, yet follow similar underlying heuristic patterns. Attention to this deficit framing is important for three reasons because it is an essential part of how innovation transforms societies in the 21st century – not only through new technological possibilities or economic growth, but also through the institutional changes, proclamations of societal visions, and new forms of political legitimacy and authority deriving from the unquestioned imperative for innovation. Our study hence seeks to foreground the possibility of alternative political framings of the need for innovation and the limits of the innovation imperative. In particular, we highlight a lesson from PUS for innovation policy: first, its tendency to marginalize rationales, values, and social functions that do not explicitly cater to innovation; second, an implicit pro-innovation bias in which innovation is increasingly becoming a goal in itself; third, the need for (and limits of) greater democratization of the design and implementation of innovation policy. Our paper thus adds to the growing body of research that emphasizes the need for reflexive and responsible engagement with innovation.

**New and Emerging Needs: the Case of Space Tourism Harro van Lente, Maastricht University**

The paper will address general and pertinent questions about the malleability of needs: how are novelty and needs co-produced? Can such changes be anticipated? Also, when needs are not pre-given, but dependent upon socio-technical configurations, and, in fact, both cause and effect of technological change, the question emerges what the role of publics, policies and experts can be. While the public is the carrier of the novel need, the public is also mobilized as the critical instance of the technological possibilities and the novel needs. To unravel the emergence of new needs, this paper investigates the contested case of space tourism and the various ways it generates and mobilizes novel needs. Space travel has its roots in the Cold War arms race and in science fiction novels and movies. This century, various operators like SpaceX and Virgin Galactic seek to offer space travel for private persons, and promise to organize such travels on a regular basis in the near future, with dropping costs. An array of orbital and sub-orbital space flights are being developed, based on new technologies and new business models. In their attempts to define and inhabit the prospective market for space tourism, these operators bring forth particular visions of the future of space tourism and why people would need it. Data are drawn from newspaper articles (2005-2015), websites of operators, popular books on space travel and governmental documents.

**The Organ Shortage Deficit Lindsey McKay, Brock University**

Claims about the depth of a deficit of human organs for transplantation are used to justify more radical interventions and greater public resources. Inadequate supply is both real for those waiting and a social construction. Drawing from a recent study of voluntary donation and another on transplant tourism, both in Canada, this paper uses economic sociology scholarship to theorize the “organ shortage crisis” deficit. First, I present the case by identifying the discursive framework that underpins the deficit claim, and unpacking the politics involved across key social and institutional sites. This includes: how this particular “deficit diagnosis” is continually re-created through networked private and institutionally sponsored organ donation campaigns, and in public policy; the boundary pushing it enables; and where and why contestations and limits lie. Second, I move to theorizing this phenomenon using economic sociology to argue that the need to motivate voluntary donation tempts actors to enlarge deficit claims. Third, I address the contrasting consequences for social justice — for people need of organs and for non-altruistic donors — that emerge from the social construction of this deficit and argue for a reconceptualization of the relationship between the demand and supply of human organs for transplantation.

**The Technology Assessment Agenda in Europe: From Institutional to Knowledge Deficit Pierre Delvenne, Université de Liège (SPIRAL); Benedikt Rosskamp**

When addressing the continuation of Technology Assessment (TA) institutionalization, two assumptions need to be empirically confronted and conceptually revisited. The first consists of a linear expansion of single, national and specialized TA organizations in an increasing number of countries. The second concerns the “opening up” and “broadening out” of the scope and depth of assessments, notably by encouraging the development of participatory TA. Drawing on a European project that thrived on such views, we confront the project’s normative goal of “increasing the capacity and enhancing the institutional foundation for knowledge-based policy-making on issues involving science, technology and innovation, mainly based upon the diversity of practices in Parliamentary Technology Assessment” to empirical data collected in three European fieldworks where such attempts were (unsuccessfully) conducted. Our results interrogate these failures under the light of an evolving deficitary vocabulary. We show that, instead of endorsing the above-mentioned “knowledge-based policy-making” ideal, the respective TA developments are placed under the banner of “evidence-based governance”. In the face of the difficulties to resorb the institutional absences (creating new TA institutions in newcomer countries), the narrative of institutional deficit mutates into one of a knowledge deficit (making TA knowledge available to a wider number of countries). The implications of this evolving deficitary narrative are explored and related to the rise of a more positivistic and uncultured conception of TA knowledge and to a transformation of the regime of epistemic subsidiarity (Jasanoff 2014) departing from a mode of coexistence towards greater cospecialism.

**Deficient Populations, Deficient Policies? The Politics of Knowledge Repertoires on ‘Healthy Food’ in Obesity Prevention Practices in the Netherlands Else Vogel, University of Amsterdam**

Based on ethnographic fieldwork on obesity prevention in the Netherlands, this paper explores the politics of deficit construction in health promotion practices – specifically, in relation to knowledge repertoires concerned with ‘healthy food’. Professionals identify a ‘lack of knowledge’ among families with an unhealthy weight. It follows that prevention efforts include advice on healthy living. But it appears difficult to make such advice meaningful on the ground. In practice, people grapple with a lot of, often contradictory, messages embedded in cooking traditions, printed on labels and spread through popular media. These include insights from different scientific disciplines, which often do not cohere and may inform contradictory advice. In this paper I explore why despite apparent limitations and the program’s stated commitment not to judge but ‘connect to the lifeworld of citizens’, the genre of ‘education through information’ predominantly persists in policy-in-practice, enacting obesity as a problem of badly informed choices and its affected populations as deficient. Next to pointing to the ‘deficit’ inherent in this co-construction of solutions and problems, I analyze the material semiotic relations that support it. Rather
Making Sense of Political Calculations

quantitative methods in political science/theory; performances of might include: the quantification of political sentiment; "statactivism"; instruments of sensing, sense-making, and sensation in politics. Topics particularly invites contributors to reflect on the use of quantitative tools as

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Looking for a National Deficit. How the European Union

Reconfigures the French National Accounts Policy

Production Quentin Dufour, Université Paris-Dauphine

National Accounts constitute a State’s basic knowledge on the economy. In France, the production process is wellinstitutionalized since the 70s in the National Account Department of the French Statistical Institute. Nonetheless, for decades, the European Union meddles in the government of National Accounts, keeping a close watch on the States members’ deficits. The paper addresses the politics of production of the French National Accounts. Drawing on STS approaches and the political sociology of quantification, I question the ways in which National Accounts are reconfigured through the European requirements on public administrations deficit. My analysis is drawn on an ethnographic study at INSEE within the National Accounts Department, and mixes interviews, observations and technical documents. In this paper, I follow the way in which the boundaries of « public administrations » are negotiated in practice during the accounts production process.

Looking at the work in progress, at the heart of the technical metrics, allows me to grasp political conflicts between two logics: on the one hand, the logic of national accountants, whose job is to produce a comprehensive representation of the economy; on the other, the logic of the European Union, that reconfigures National Accounts to control the States members’ deficits. The paper contributes to an STS approach of public action and the politics of public numbers.

Chair:
Sebastian Michael Pfotenhauer, Technical University Munich

283. Making Sense of Political Calculations

Traditional (Closed) Panel
Sheraton Boston: Floor 3 - Beacon F

11:00 to 12:30 pm

As recent electoral events have shown, intensive calculations—from data-driven, “micro-targeted” campaigning strategies to the probabilistic electoral forecast models crafted by FiveThirtyEight and The New York Times—have gained considerable authority over how political actors and the public make sense of political processes. These new forms of political calculation present an opportunity, and challenge, for STS scholarship. The politics of quantification has long been a key problematic for STS scholars, who have focused largely on the use of quantitative practices as technologies for exercising state control and as technologies for generating political trust. Are these prevailing schema of control and trust—or objectification and objectivity—sufficient for explaining the potent (politically, culturally, emotionally) forms of calculative practice and engagement evident in contemporary political life? This panel invites papers that explore new ways of understanding the place and power of calculation in political processes, in any historical or contemporary context. Taking this year’s conference theme, In(Sensibilities), as a cue, it particularly invites contributors to reflect on the use of quantitative tools as instruments of sensing, sense-making, and sensation in politics. Topics might include: the quantification of political sentiment; “statactivism”; quantitative methods in political science/theory; performances of calculation in popular media; feedback, reactivity, and performativity; affective engagements with political numbers.

Participants:
Seeing Algorithms as Infrastructure: Making Sense of the Reddit Voting System in Narrative and Practice Katherine Lo, University of California, Irvine; Alex S Taylor, Microsoft Research

Recent crises in American politics have heightened visibility and concern about the influence of online social media on culture and politics. In order to understand these effects, technologists and scholars attempt to locate the ‘responsibility’ of algorithms in the technical platforms facilitating these social trends. How may we begin to understand the material effects of algorithms, beyond the logic that constitutes an algorithm, and the common narratives used to define and make sense of them? This paper proposes seeing algorithms as infrastructure, as a means to uncover the material effects of algorithms. We use Susan Leigh Stars’ definition of infrastructure to frame our Trace Ethnography of the voting system that is used to curate the content on Reddit. We examine the narratives historically used to make legible the algorithms that constitute this system by both its developers and its users, which characterize the voting system as a fair and transparent model that democratizes the curation of content. However, while the surrounding infrastructure changes, algorithms are themselves distorted as they wrestle with the structures that they’re embedded in—as Reddit scales and changes in structure both technically and socially, the voting algorithms themselves perform differently. We observe the frictions and crises that arise from the performance of this voting system diverging from its narratives to surface the assumptions that underlie its development and the way it changes materially along side the rest of the platform.

Accounting for Health: Scale as Techno-Sensibility in São Paulo Jack Mullee, University of Chicago, Department of Anthropology

Policymakers in Brazil characterize the politics of health in experimentalist terms (Coeelho 2007; Cohn 2007). Health, however, is public health objectives are pursued iteratively, through ongoing innovation, evaluation and reform of policies. This pursuit is undergirded by technocratic and democratic notions of experimentation. On the one hand, public health professionals have sought to iteratively design a technically effective system (the Unified Health System, “SUS”) that delivers universal access to healthcare. On the other, they have repeatedly proposed novel political mechanisms and channels through which technical administration might be made more democratically accountable. A tension between the technocratic and democratic thus emerges as a critical condition of Brazilian healthcare. In this talk, I draw on ethnographic fieldwork in Greater São Paulo to argue that reform advocates attempt to resolve this tension by turning to scale, or through the use of what I call ‘scalar reasoning’. Reformers cannot speak to healthcare without articulating scalar entities (e.g. the region) and relationships (e.g. federal vs. municipal). In turn, professionals often justify healthcare reforms by proffering novel scalar entities and schemas (e.g. “relevant frame is regionality, not municipality”). In short, I argue that scaling has become a technocratic milieu – comprising beliefs, practices and a search for techno-administrative “truth(s)” – in its own right. Nodding to “STS (In)Sensibilities”, my paper will: (1) explore how scale has emerged as the key techno-sensible register of health in São Paulo; and (2) posit that scale is a promising anthropological domain through which STS scholars might interrogate the blurring of qualitative and quantitative.

Cultivating Taxpayer Subjects as Experts of Government Kyle Willmott, Simon Fraser University

Literature on democracy and expertise has focussed on the actors, networks, and forms of knowledge that get to lay claim to the status “expert” and “expertise”. This paper theorizes the knowledge production processes that lay behind the ubiquitous subject position, and “lay expert” “taxpayer”. Wrapped up in this subject position is several assumptions about the normative operation of politics and the state, budget, the objectivity and reliability of numbers, the fiscal nature of public problems, and ideas about political futures. To grapple with a political problem as a taxpayer is to litigate not its politics, but to contest the very notion that it is political in the first place. In short, to reason as a taxpayer is to calculate as an empowered self-expert of democracy, drawing on the ‘public habitat of numbers’ (Rose
Pollsters Got It Wrong, Did Data Mining Get It Right? On The 'Social Rate of Discount' and the Sensibility of the Future

William P. Deringer, Massachusetts Institute of Technology (MIT)

"Why do governments require citizens to sacrifice current consumption in order to undertake investments that will not yield their benefits until those called upon to make the sacrifice are all dead?" Few political-philosophical questions loom larger in this age of anthropogenic climate change. This particular phrasing of the question comes not from the 21st century, though, but fifty years earlier; its particular topic was not climate change, but water infrastructure projects, like dam-building. It came in a 1963 Quarterly Journal of Economics article on the economics of public investment, written by Stephen Marglin, part of a flurry of articles on the topic published in the 1960s. For Marglin and his economist colleagues, as well as many public-policymakers, the political question about sacrificing-for-the-future was most sensible as a question about a single mathematical variable: the "social rate of discount" employed in the formal cost-benefit analysis models used to assess government projects. Debates about such discount rates remain central to contemporary discussions of climate-change economics. By examining technical debates about public investment in the 1960s, this paper seeks to explain how that one particular calculative practice, social discounting, became the paradigmatic means of comprehending the political relationship between current and future generations in contemporary political economy. How was it that an arcane calculation, derived from financial practice, became the way modern polities "make sense" of citizens' sentiments about the future?

Pollsters Got It Wrong, Did Data Mining Get It Right? On Devices of Public Opinion

Laurie Waller; David Moats, Linköping University, Tema-T (Tema Technology and Social Change)

Recent political events have reopened longstanding debates about the epistemology and methodological foundations of quantitative public opinion research. In relation to both the recent US election and the British EU referendum, the political polling industry in particular has been criticized for failing to adequately capture or reflect the public mood. At the same time a range of data mining technologies, including advanced campaign platforms and so-called 'psychometric modelling' based on social media traces have been proclaimed as heralding a 'new paradigm' of public opinion research, displacing the 'traditional' techniques and expertise of the political polling and consulting industries (Kreiss 2012). To what extent do data mining techniques effect such redistributions of expertise and capacities to represent public opinion? How is the power of data mining demonstrated and in which practices does it become politicized? What versions of 'the public' are performed through these new technologies? Taking a device-centred approach (Marres and Lezaun, 2011), in this paper we focus on the discursive and material enactments of these sensationalized technologies. We utilise digital methods and techniques to map different varieties of polling data alongside qualitative analyses of discussions of this 'paradigm' shift in mainstream media, social media and 'fake news' sites. Through a series of experimental visualisations we attempt to map some of the diverse publicity for data mining while also attending to the ways in which political participation gets 'scripted' in particular devices. We aim to contribute to debates about data mining, the role of traditional expertise in democracy and the reflexive use of digital tools in STS more generally.

Chair: William P. Deringer, Massachusetts Institute of Technology (MIT)

284. Sensibility and Experience in Autism: Prostheses, Interaction, and Life Histories

Sheraton Boston: Floor 3 - Beacon G

Over the past twenty years, public awareness of Autism Spectrum Disorder (ASD) has grown alongside increasing rates of diagnosis. Work by social scientists has demonstrated how various social and professional groups employ different epistemologies and ontologies of ASD when they explain the causes, treatments, identities, and social consequences of this condition. Epistemologies of ASD are located in practices of knowledge making from genetics and neuroscience to diagnostic tools and treatments. Our understanding of autism also concerns alternative ways of knowing that have often been excluded from dominant accounts of autism, including the concept of neurodiversity and other sensibilities that comprise local forms of knowledge. This open panel aims to bring together STS scholars investigating different epistemologies or ontologies of ASD, to identify and articulate how STS has grasped and responded to this growing social phenomenon, and to address the limits of our analyses thus far. We seek papers exploring the tensions between dominant frameworks of ASD and sensibilities that are less known, imagined, or considered in current STS accounts. These sensibilities could include but are not limited to: implicated actors in autism whose voices are often left out or only discursively present across situations; gendered dimensions of autism diagnosis, treatment, or care; global and/or cross-cultural perspectives; relationships between human and nonhuman animals in autism science; and others. The panel will explore the sensibilities at play in perceptions and experiences of autism and aim to inspire new directions in STS research on autism and related categories of disability and difference.

Participants:

Growth in Context: The Emergence of a Disability Frame in Accounts of the Development of Adults with Autism

Benjamin DiCicco-Bloom, Hamilton College

In the last twenty decades autism has evolved from a little known condition to one of increasing clinical prevalence and cultural resonance. Despite the diverse actors and institutions that have sought to interpret and respond to this evolution, an overarching theme of the discourse surrounding autism is that the condition is best understood as a disease. Even though this definition and the cultural narrative associated with it has shaped the American public’s understanding of the condition, the empirical contours of autism in adulthood suggest that major elements of this narrative are poorly equipped to capture fundamental aspects of the lived experience of autism. Drawing on a six year ethnographic study of a group of families that have an adult member with autism, this paper uses the experiences of one family in the study to challenge some of the characterizations of the disease narrative—that autism is a death sentence, that those with autism are removed from their social context, and that those with autism don’t develop—by illustrating that vitality, embeddedness, and development are central to the experiences and life course of adults with autism. Beyond challenging these characterizations of the disease narrative, this paper illustrates how an ecological perspective on the life of adults with autism allows for an interrogation of the simplifications and distortions associated with the medicalization of the condition. Though scientific and popular texts that frame autism as a medical concern have produced important knowledge about the condition, they have, among other things, undermined conceptualizations of those with the condition that demonstrate how they shape and are shaped by the world around them and contributed to a dearth of representations of the many adults with autism today and in the past.

Reflections on What Moves Us

Melissa Park, McGill University
In this paper, I will interweave a personal journey up the Sagueney river to view Beluga whales with the experiences of parents of children with autism drawn from a photo voice project on sensory-spatial exclusion (Davidson, 2010), and experiences of youth with autism drawn from an intersectoral and interdisciplinary event, “Interfacing biomusic and autism” (Spring, 2017) to explore, what I am calling, an ontology of belonging. Guided by narrative-phenomenological conceptual frameworks, this journey extends my reflection on the challenges and potentialities of being situated between polar territories of the logic—and therefore grammars—of a positivist-scientific stance of biomedicine and a literary–philosophical one used to represent experience (Park, 2008). In this paper, I seek to accentuate how attention to an aesthetics linking judgements of the good, bodily-sensing perceptions and an everyday ethics blurs the boundaries between human and nonhuman animals, diagnostic category and the typical, technology and the arts. This focus also suggests how both-and epistemologies of science and the humanities, central to theorizing within STS, provide a productive tension to examine how what moves us is inextricably entangled with experiences of inclusion in that ambiguous territory of the in-between. Davidson, J. (2010). 'It cuts both ways': A relational approach to access and accommodation for autism. Social Science & Medicine, 70, 305-312. Park, M. (2008). Making scenes: Imaginative practices for a child with autism in an occupational therapy session. Medical Anthropology Quarterly, 22(3), 234-256.

Permeable Narratives, Permeable Selves: Mutant Roleplay and the Autism Spectrum

Elizabeth Fein, Duquesne University

Autism is an extraordinarily contested condition. To some, it is a devastating disease, exclusively negative in its impact and separable from the affected person. To others, it is a fundamental, constitutive element of identity, bringing valued strengths as well as vulnerabilities. Drawing on two years of ethnographic fieldwork and 130 interviews with people diagnosed with autism spectrum conditions, their families, and the professionals who work with them, this paper will explore some ways that youth diagnosed with autism spectrum conditions make sense of these controversies, reconciling these seemingly incompatible ideas about autism, the self, and the relationship between. I argue that many controversies around the ontology, epistemology and valence of autism arise from its uneasy position between two trends in contemporary psychiatric science: a “pathogen model” that seeks to delineate and eradicate disease entities, and a “package model” that aims to map entire systems, identifying abnormalities in neurogenetic circuitry. Embedded within these approaches are deeply differing assumptions about the relationship between abnormality, disability and pathology; in the spaces where they overlap, intractable ethical conflicts arise. However, both of these approaches share an understanding of the healthy self as bounded, continuous and impermeable. By looking outside of medicine to draw on a shared folk mythology of embodied difference from video games, Japanese anime, comic books, and other fantastical popular media, many youth on the spectrum articulate a model of the self that is more permeable and less continuous than the ideal of health presupposed by these available medical models. As they playfully re-imagine themselves as mutant antitheoros who are half human and half demon, pierced by shards of evil swords, or possessed by powerful ancestors, youth on the spectrum are also finding new ways to conceptualize the complexities of neurodevelopmental difference, acknowledging the ways that the world around us gets under our skin.

Who Let the Dogs In? The (In)Sensibilities of Autism Epistemologies in Light of Human-Canine Interaction

Olga Solomon, University of Southern California

The field of human-nonhuman animal interaction has generated empirical evidence of the positive effects of companion animals – especially dogs – on processes underlying human health and well-being, from neurochemistry and psycho-physics to physical activity and community participation. The therapeutic impact of companion dogs on people on “the autism spectrum” has been especially well documented. There is however a tacit assumption in the mainstream research community that human-animal interaction research is a “warm and fuzzy” non-science initiated by seemingly solid researchers who are ‘undercover’ animal enthusiasts with unsurpassable biases and dangerous agendas. The main argument of this paper is that these assumptions are, in a sense, correct: that the danger of conducting human-canine interaction research involving persons “on the autism spectrum” is that it disrupts many tenets of scientific epistemological hegemony in general, and accepted epistemologies of autism in particular. Drawing upon a large ethnographic video-data corpus that has supported a decade long research program on human-canine interaction involving children diagnosed with Autism Spectrum Disorders (DSM-IV-TR), this paper offers a micro-level analysis of child-dog-other people interactions that questions dominant autism epistemologies. The contribution to STS is that companion dogs are conceptualized as socially assistive “technologies of the self”, to use Foucault’s term, developed through a common co-evolution with humans. Dogs have been used for millennia to extend human sensorium and capacity for action, from herding flock to sniffing out bombs, drugs, and cancer. In this sense, understanding what human-canine interaction can teach us about autism is at the very intersection of Science, Technology, and Society.

Chair:
Chloe Silverman, Drexel University


Traditional (Closed) Panel
11:90 to 12:30 pm
Sheraton Boston: Floor 3 - Beacon II

The independence of science has been – and still is – a contentious and multifaceted theme in science studies. Originally defined against the idea of central planning (Polanyi 1962) and cast as functionally necessary, its value today appears to be context-dependent. STS scholars have critically analyzed the dependency of research on industry and the resulting secrecy or distortion of findings (Krimsky 2013). At the same time, we have critically analyzed the independence of research from civil society, which we consider undemocratic, irresponsible, and dysfunctional. Research has been able to demonstrate that independence from civil society actors contributes to consequential gaps in scientific knowledge (Frickel et al. 2010). Underlying such concerns are some common questions. What does being independent mean for researchers, research groups, and research organizations? Since science is never completely independent, these actors can be thought of as constantly processing dependencies and actively creating and maintaining their independence. How is this achieved? What are the consequences of independence gained or lost? We invite researchers to submit current empirical and theoretical work concerning the conditions for and consequences of the (in)dependence of research or researchers. We are particularly interested in bringing together perspectives from different disciplines and in promoting a dialogue between philosophy, sociology, the economics of science, and political studies of science.

Participants:
Bridges and Boundaries: An Exploration of the Roles of REF2014 Impact Assessors Peter Thayer Robbins, Open University (UK); Gordon Wilson, Open University; Andrew Watkins, Open University; David Wield, Open Univ

The 2014 Research Excellence Framework (REF2014) was the first time in the history of UK government research evaluations that non-academics had a prominent role in the evaluation process as assessors of ‘research impact’ outside academia. The outcome of the REF2014 determined the governmental funding to university departments for the following five-year period. This paper explores the backgrounds of 158 sub-panel impact assessors from all four main subject panels of REF2014, named in funding council documents. LinkedIn and Google were searched to create short career biographies for each assessor. We found that representatives who had spent most of their careers in the pharmaceutical industry and National Health Service featured
in Panel A (health and biology), as executives of major corporations in Panel B (engineering, math, and physics), as civil servants in Panel C (social science), and as representatives from arts councils and book presses in Panel D (arts & humanities).

We also found a group that worked across social worlds, having combinations of prominent roles in academia, business, government, and/or the third sector. This was most apparent in Panel B where assessors held prominent roles in business and academia. We defined those with such hybrid roles as actors with a ‘bridge role’, in contrast to others who had a more typical ‘boundary role’. In the paper we use role theory to explore the implications of the bridge role for boundary work and boundary organizations, reflecting on the opportunities and constraints it may present.

Transformation through Competition: Independent Researchers and Dependence on Research Funding in the Biomedical Sciences Annalisa Salonius, Independent Scholar, formerly University of Pennsylvania

The debate in STS about how the academic life sciences have been changing since 1980 in both Canada and the U.S. has focused primarily on the influence of the increasing commercialization of academic research and enhanced university-industry ties. There has, however, been an assumption that the structure of academic labs themselves has remained essentially the same. This study examines an episode that challenges this assumption: the emergence of larger lab groups in the biomedical sciences. The paper explores how, in the case of Canada, changes in federal funding arrangements during the 1980s led professors to adopt new practices, transforming their work and the conduct of research in this field. Based on evidence from work history interviews with older and retired professors done during a larger ethnographic study of work in academic labs, the main argument is that dependence of independent researchers in this field on federal grants and a key shift in the nature of competition for those grants in the 1980s led to a transformation of the social organization of work in this field, including giving rise to larger hierarchically-organized labs. Understanding this shift in funding and the new practices it brought about will be important for fully understanding the role of the contemporary independent researcher in this field.

How Does the Redistribution of Research Opportunities Affect the Independence of Problem Choices? Jochen Glaser

The two main authoritative agencies involved in the distribution of resources for the public sciences – scientific communities and the state - respond to the increasing absolute and relative scarcity of resources by increasing the selectivity of allocations to researchers, research groups and public research organizations (universities). The increasing selectivity implies a redistribution of opportunities to conduct research in terms of time for research and of material resources. Depending on research intensity, collaboration patterns, and time requirements of research this redistribution modifies the opportunities to conduct independent research, which is understood here as research that challenges majority opinions of scientific communities, performance requirements of public research organizations, or political priorities for research. In particular, the emergence and reproduction of three strata of researchers is to be expected, namely researchers who are unable to conduct research at all, an elite whose members are able to conduct independent research and a ‘middle class’ whose members must struggle to secure their continuous research, and must relinquish their independence in order to do so. The aim of this paper is to present for discussion a research program that establishes causal links between the redistribution of research opportunities, epistemic properties of fields, and the distribution of opportunities to conduct independent research. The research will focus on lock-ins and lock-outs, i.e. the creation respectively destruction of necessary conditions by previous success respectively failure. These mechanisms will be explored for the redistribution of material resources in the sciences and the redistribution of time in the social sciences and humanities.

The Metrics of Dependence: Research Entrepreneurs in an Epigenetics Laboratory Clemence Pinel, King’s College London; Barbara Prainsack, King’s College London; Christopher McKevitt, King’s College London

Epigenetics is the study of the processes that control gene expression but do not entail a change in DNA sequence. The relative youth of the epigenetics field and its blurred boundaries with other fields of scientific practice makes it particularly dependent on quantified assessment and managerial metrics. Metrics, such as research assessments or claims of impact on the ‘public’, influence both the questions explored and the methodologies used in epigenetics. We draw upon findings from an ethnographic study carried out in an epigenetics research laboratory to demonstrate the extent to which researchers’ practices are shaped by the multiple evaluation exercises, hence challenging researchers’ autonomy. Our findings illustrate how researchers cope with these constraints. We argue that one strategy is to adopt entrepreneurial identities. They start to see research institutions as opportunity structures where they can accumulate capital. For example, in the search for ‘amazing data’ encouraged by high-impact factor journals, researchers strategically engage in collaborations with other groups to build large datasets, which they use public engagement exercises as platforms where they can develop a diverse repertoire to justify their work and gain career benefits. Finally, we discuss what research entrepreneurship entails for the quality of the research and epigenetics knowledge produced. We thus contribute to the STS literature by providing empirically informed insights on how researchers understand their position in the research system, and by discussing how scientists, in an era of accountability, negotiate their independence.

What Lay Underneath Innovation in Biotechnology: Risk and the Emergence of Translational Science and Medicine Mark Robinson, DePaul University

The explosion of the new field of Translational Medicine has brought about nearly 400 new global institutions and entire new research campuses for universities across the globe. Since 2003, billions of dollars have been invested in Translational Medicine and its has become an obsession for National science and health funding agencies internationally. For its proponents, the endeavor would bring about grand new medical innovations by reorganizing how medical research gets done. From new academic departments to new research funding programs, the rise of Translational Medicine has spelled dizzying changes to how modern biomedical research is being designed, executed and assessed. However, while its proponents see it as a largely scientific and medical intervention (focusing research toward more application and product-oriented ends; connecting researchers from different disciplines who are working on similar problems), a deeper analysis shows that Translational Medicine operates as a means for pharmaceutical outsourcing -- designed around the needs of private companies that seek to partner with universities around research and development. Informed by ethnographic and comparative work, this panel shows the way that Translational Medicine reflects the increasing financialization of biomedical innovation as well as a means to externalize risky R&D projects from newly risk-averse biopharmaceutical industry stakeholders.

Chair: Ed Hackett, Brandeis University

286. Democracy, Science, and Technology II: Money

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Berkeley

Interactions between democracy, science, and technology run in both directions. From the appearance of the democratic state, the very field of statistics developed in support of evidence-informed policy-making, constitutional and statutory law support intellectual property rights based on the belief that innovation is critical to state capacity, and governments have been involved in the practice of and funding for science and technological
Innovation. More recently, we have seen the rise of demands for stronger participation in decision-making about the funding of "big science" and the use of research findings, and both citizen scientists and scientist citizens have become important roles. Recent political trends, however, appear to be breaking these relationships. Policy-making is increasingly evidence-averse – or evidence-hostile – with consequences that touch the fundamentals of society and the environment. Shifts in funding and in regulation of science and technology threaten to undermine knowledge production and use. There is again the possibility that taking particular scientific positions may be treated as a political rather than intellectual matter. Already some scientists are declining to cross certain boundaries because of fear generated by political developments. This panel will look at relationships between democracy, science, and technology as they have been in the past, and as they may be in the present, and as they may be in the future. Papers dealing with the problem of developing arguments and evidence that will be persuasive in what The Economist described as a "post-truth" environment, hostile to facts and to reason, are particularly encouraged.

Participants:

Data, Dependence, Democracy: Influence in the Secondary Use of Government Information Duncan Friend, University of Kansas

Information collected, created, and distributed by government is used in policy formation, agenda-setting, and regulatory processes. However, over the last decade, open government policies combined with emerging private sector interest in government data have attracted a growing number of "secondary" users who seek to reuse government information to drive innovation and economic development. As these users come to depend on the data in their business models, this new resource may create or enhance political constituencies with a stake in its content and availability, creating incentives that can influence or possibly undermine its primary use by government. In turn, governments may come to depend on the political support, cost avoidance, or even revenue produced by making this data available. My principal expectation in this research is that the construction of government information is increasingly shaped by a process of mutual dependency between the government agencies that make information available and the organized interests that gain access to it, enabled by policy. The basis for this expectation is a growing body of research showing that policies construct private interests, mobilize constituencies, and, over the long term, may fundamentally reshape the state-society relationship (Pierson, 1993; Skocpol, 1995; Hacker, 2002; Mettler, 2002; Campbell, 2003; Mettler & SoRelle, 2014). This paper applies this theory, referred to collectively as "policy feedback theory", to examine government information policies involving open data and access to information at the federal level to determine how they may create conditions under which an information dependency could develop. And, it explores ways in which such a dependency might influence the content and availability of government information. I find that the policy infrastructure at the federal level on information access closely mirrors the conditions necessary for such dependency to develop. The research represents preliminary work for my current dissertation project, a qualitative study of the influence of secondary use on the construction of information in state and federal government. This study will contribute to STS as it looks at influences on the production of information (knowledge) in a government setting through the lens of policy, politics, and the market. Government is directly involved in or sponsors a large amount of data production, much of it open and of great value to multiple "secondary" users, including the scientific community. Insights into how mutual dependencies are enabled by policy and the potential dimensions of such influence can expand the "sensibilities" applied in studying the production of government data. By viewing government information as a resource and commodity, researchers may identify new political and market influences on its content and availability, including those from constituencies that may come to depend on the information for reasons beyond those that initially resulted in its collection. This topic is also significant in that it lays the groundwork for instituting safeguards against undue influence on the shape of government information and re-introduces the topic of information construction and "documentary reality" (Smith, 1974) to the discussion of the objectivity and transparency of government data.

Conflict of Interest, Transparency and Medicines Boris Hauray, National Institute for Health and Medical Research

For more than two decades, conflict-of-interest (COI) controversies have rocked the field of medicines and undermined public trust in scientific knowledge, prescription practices and public regulations. The establishment or reinforcement of "transparency mechanisms" aimed at disclosing the financial ties between pharmaceutical firms, on the one side, and researchers, experts, administrative and political officials, healthcare professionals or patient organizations, on the other, has been the main response to this legitimacy issue. Focusing on the French case, this paper (based on interviews and document review) will firstly analyze how these mechanisms result from mobilizations, power relations, and compromises and will seek to identify the main properties of transparency brought forward in the public debates. It will, secondly, underline what this transparency brings to light - focusing on the role of watchdog organizations and investigative journalists- but also what it leaves in the dark. It will finally discuss the effects of this release of data on the relationships between health professionals and industry. On the one hand, it is likely that mobilizations around questions of COI have led certain researchers or doctors to call their practices into question. On the other hand, it could also be suggested that biomedical practices are relatively impervious to the emergence of COI as a public problem because of the structural logics regulating the sector and because of changes in its political economy, which arguably increase acceptance of the commercial dimension of biomedicine.

The Technopolitics of a Basic Income Daniel Breslau, Virginia Tech

Universal Basic Income (UBI) schemes bring together supporters across a wide swath of the ideological spectrum with the promise of a social policy that effectively combats poverty without the conditionality of typical welfare programs. Under UBI schemes, adult individuals receive a fixed periodic payment sufficient to cover basic needs, with no condition of eligibility other than citizenship. It eliminates the conditionality of traditional welfare programs, in which a benefit is attached to a particular condition, such as parenthood of young children, age, unemployment, disability. But UBI schemes are also unusual for the scientific measurement apparatus that accompanies them. Invariably, UBI schemes are introduced as pilot experiments, using scientific designs such as randomized assignment with control groups. As a condition of receiving UBI payments, experiment participants agree to third-person and self-tracking of their income and expenditures, using a provided mobile application. This paper employs concepts and methods from STS studies of market devices and performativity to treat the scientific and technological apparatus around UBI programs as a feature of the programs themselves. Using primary documents and technical reports, the paper describes how experimentation and tracking are used, first, to manage the political environment, bridging the potentially divergent interests supporting the programs. But, secondly, the devices also play an important performative role, provoking quantifiable performances of citizen/consumers. The scientific and technological features of UBI, as devices in the performances of the program's beneficiaries, help redefine the relationship of citizens to the state. Finally, the paper considers ways that participants in these experiments can appropriate the experimental design and digital technology to collectively build their own concerns into the inquiry.

The End(s) of Science: Temporal Trajectories of Brazilian Biofuel Research Katie Ulrich, Rice University

A Brazilian scientist warned in December 2016, "It will be the end of science in Brazil." This scientist was referring to a
recently passed constitutional amendment which froze federal spending for two decades at what were already low levels. Even before this, state funding agencies had been experiencing budget crises in the wake of the country’s economic recession, failing to pay thousands of scientists their already-awarded grants. This paper will explore practices of science not in a time of hype, intensification, or even stability, as many studies of science attend to, but amidst imaginaries and lived experiences of decline and downturn. Specifically, it will draw on ethnographic research conducted in the summer of 2017 with São Paulo scientists who investigate the fundamental biology of sugarcane in the name of biofuels. Brazilian sugarcane biofuel science offers a unique case study on temporal trajectories of scientific research, as Brazil led world biofuel production for several decades beginning in the 1970s and in the last decade witnessed an extraordinary amount of science funding for sugarcane biofuels, until the recession hit. This paper will take an exploratory approach through several entry points—including the ways these scientists map futures through the mapping of the sugarcane genome, and their multispecies modes of engagement with the sugarcane plant—hoping to ultimately offer insight into new questions, aspirations, and modes of experimentation emerging now for these scientists within the new temporal horizons of science in Brazil, and potentially more broadly within a climate of post-fact, post-evidence truth.

Chair: Sandra Baraman, Texas A&M University

287. Smart yet (in)Sensible? Feminist Critical Perspectives on “Smart Cities” II

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Clarendon

The Smart City is a topic with global importance across diverse sites. Consider recent initiatives such as the White House’s “Smart Cities”, New York’s Sidewalk Labs, or Smart City Barcelona, all vying to define the city as a magical frontier full of “smart technologies” that will benefit its citizens. The smart city evokes images of a techno-utopic city: where Internet of Things, and Big Data. In light of such ubiquitous computing technologies in relation to sense (accessible and actionable) and sensibility of Science and Technology Studies that include feminist, critical race inquiry on the politics of urban innovation, studying civicness in the Smart City: Solutions in Search of Problems Barcu Baykurt, Columbia University

There is a growing literature on the smart city, in which the primary actors are tech companies intent on privatizing public services and city governments eager to boost economic competitiveness. This paper challenges that top-down view, and shows that the creation of a smart city can involve a great deal of bottom-up support. Based on two years of ethnographic fieldwork in Kansas City, where a civic movement took off to create a data-driven city by partnering with tech companies such as Google, Cisco, and Sprint, I contend that the data-driven city means to organize their own “development” and redefine civic agency.

Civicness in the Smart City: Solutions in Search of Problems Barcu Baykurt, Columbia University

There is a growing literature on the smart city, in which the primary actors are tech companies intent on privatizing public services and city governments eager to boost economic competitiveness. This paper challenges that top-down view, and shows that the creation of a smart city can involve a great deal of bottom-up support. Based on two years of ethnographic fieldwork in Kansas City, where a civic movement took off to create a data-driven city by partnering with tech companies such as Google, Cisco, and Sprint, I contend that the data-driven city spurs unconventional forms of civic engagement, rooted in a complex calculus of urban boosterism, intellectual curiosity, and expertise. I introduce “civic entrepreneurs” — a network of local tech entrepreneurs, urban transit advocates, members of nonprofits, and entrepreneurial public officials — who not only promote these nascent technologies, but also encourage a new style of civic engagement (problem-solving). On the contrary to the expectation that data-driven cities solve, or intend to solve, extant urban problems, I show that many on-the-ground efforts consist of an ongoing search for problems. Problems. Civic entrepreneurs constantly hunt for new problems (“Why does water consumption dramatically increase on Wednesdays?”), or new ways of measuring (“Is there a relationship between domestic violence and ownership of air-conditioning?”) to prototype solutions rather than attending to pressing visible problems. This new style of civic action that is predicated upon “seeing what the data say” in any direction rather than using data to solve pre-determined problems, I suggest, radically challenges
the very mundane definition of civic engagement, that is, collectively solving problems for the common good. Is this “searching for problems” model of engaging with the city another implication of the so-called “big data” revolution wherein excessive faith is placed on mathematically superior models to govern cities? Or is it self-delusion on the part of the civic entrepreneurs who, inspired by the cultural influence of Silicon Valley, believe tech innovation could solve all our collective problems? And at what point -- and how -- can we distinguish a genuinely valuable approach to social change? Boundaries between market and civic sectors are rarely clear (Lichterman and Elia soph 2014). My paper underscores this fact by showing the strengths, weaknesses, and trade-offs of civic engagement when market expectations intersect with collective attempts to improve urban life.

Lock-In, Locked Out: Visions of ‘The Public’ in Smart City Data Programs Meg Young

Smart cities instrument urban space with sensors, making urban residents visible in new ways. Increasingly often, these sensor networks are collecting data via a cloud-based ‘software as a service’ business model, in which data becomes locked into vendor platforms and reliant on vendors to provide analytic tools. In this way, smart cities interpose new intermediaries between municipal governments and their residents, limiting the municipalities’ power to use the data they collect, or residents’ ability to access public data. This paper draws on 18 months of fieldwork with the City of Seattle and other local stakeholders. Drawing on critical theory, this paper interrogates vendor platform design, service agreements, law and policy to argue that smart city programs advance the interests of a particular vision of ‘the public’—knowledge workers and enterprises. It argues that the data generated by smart city technologies, in their current instantiation, are less accessible and sensible to residents than that from the technologies and practices that preceded them. Based on empirical examples, it locates particular opportunities for more open, accessible, and thoughtful smart city programs moving forward.

Programming in the Margins: New Actors, New Systems, and New Ways of Knowing Urban Environments in a Populist Era Hamil Pearseall, Temple University; Alan Wigg, University of Massachusetts, Boston; Michele Masucci, Temple University

Given the growing skepticism and public leadership that counters the known scientific image in the US, there is a need to ask what is data and what is knowledge in this (increasingly) populist era, and how might alternate modes of data collection counteract the governance shifts disrupting conventional modes of data collection. Applying alternative ‘smart city’ technologies, citizen sensing has become a crucial mechanism through which activists, citizens, and researchers monitor and understand environmental conditions. Citizen sensing can do more than carry on a legacy of data collection from authoritative sources, it can precipitate change in the way environmental problems are identified, framed, and characterized. No longer the exclusive purview of highly-trained professionals, the opportunity to program environmental sensors - to produce the data collection system - is increasingly accessible to a broader spectrum of actors, including people who have historically been excluded from mainstream environmental policymaking because of their lack of academic training or political connections. Although a setback for established environmental research, this political era may open up spaces for marginalized actors to take the lead in creating new ways of knowing urban environments typically dismissed as places of poverty, crime, and unemployment. This paper synthesizes literature on smart cities, environmental justice, and critical data studies for a case study of a youth-led citizen sensing effort in North Philadelphia, Pennsylvania, demonstrating the potential of this alternate approach to refashion the power dynamics associated with entrenched processes of environmental governance in the United States.

Beth Coleman, University Waterloo/MetaLab Harvard

Discussant:

Nassim Jafarimani, Georgia Institute of Technology

288. Invited Session: Making Sense of Data Revolutions: STS Perspectives on the Social Dimensions and Ethical Obligations of Digital Media Technologies and Data Production

Author Meets Critic 11:00 to 12:30 pm

Sheraton Boston: Floor 3 - Commonwealth

Breathless anticipation greeted the power of AI this past year, just as near unbridled enthusiasm met the volume and velocity of Big Data two years before that. And a mere decade ago, the social media revolution of Web 2.0 heralded the beginning of a true global village. These iterations of digital media qua social technology share at least one thing in common: they position “data” as goldmines of social life, rich with meaning and potential. Boston, MA, has long been an incubator for technology start-ups and data brokers deeply invested in capturing data as traces of social exhaust and converting them into powerful tools for commerce, political will and cultural change. How should we make sense of the consistent refrain of data as revolutionary? Is it a new site of promising, unfettered social interaction? A more direct conduit of political expression? A window into how social worlds really work? This Program Committee-sponsored panel aims to consider how STS scholars might bring their frameworks and tools to bear on the relationships that bind data production, media technologies, and optimistic futures. Speakers reflect on how we might theorize new approaches to data production as sites and evidence for critical analysis, while challenging scholarly communities to explore their own practices and obligations when using the data of media technologies for their own sense-making and argumentation. Finally, we invite all participants and audience members to examine their own investments in science and technologies as vehicles for progressive futures.

Chair:

Mary L. Gray, Microsoft Research/Indiana University

Panel Members:

Ifeoma Ajunwa, The Berkman Klein Center for Internet & Society at Harvard University

Amy Johnson

Christian Sandvig, University of Michigan

Kalpana Shankar, School of Information and Library Studies, University College Dublin

289. Technoscientific Rent II

Traditional (Closed) Panel 11:00 to 12:30 pm

Sheraton Boston: Floor 3 - Dalton

As an increasing number of “things” (e.g. infrastructure, student debt, medical care, personal data, sunlight, etc.) are turned into assets, it is necessary to work out how value is appropriated from those assets through new forms of ‘rentiership’ (or rent-seeking). Often presented as the dark side of innovation and entrepreneurship, rent-seeking comes in many forms, including: government flat (e.g. GHG emissions); monopoly (e.g. intellectual property); organizational arrangements (e.g. business models); and market configurations (e.g. value chains and networks). It is necessary, however, to move beyond the assumptions built into both Marxist and neoclassical economic literatures that rent-seeking is a problematic activity that distorts or corrupts the ‘naturalized’ working of capitalism or free markets. Instead, the purpose of this open panel is to consider these different forms of rentiership as they relate to different forms of technoscience in order to unpack the concept analytically and empirically and its relevance to science, technology, and innovation politically and normatively. The panel welcomes papers on different forms of rentiership in technoscience, different conceptions of rentiership drawing on Marxist, neoclassical, and other traditions, and discussions of the analytical, political, and normative usefulness of rentiership as a concept.

Participants:

Beyond Academic Rentiership: Why Academic Knowledge is Not Naturally a Public Good But Needs to Be Made One

Steve Fuller, University Of Warwick
In our distaste for rentiership, or as media critic McChesney calls it, "shakedown", it is parasitism which we loath. Yet if information ought to be a non-appropriable and non-rival good, with effectively zero marginal cost of production, then it should undermine the profit mechanism on which capitalist enterprise depends. (Mason 2015). Drawing from ongoing fieldwork among early-stage startups and their investors in southern California, his presentation wrestles with the tension that for diminishing marginal cost technologies, rentiership becomes the business model. Has rent capture, then, merely shifted from old money to new technologies, the few which succeed will do so by erecting anti-competitive barriers around their own technologies. To do so, I have observed, tech startups rely on two strategies, based on different types of patents: one keeps competitors from doing what they are doing (a rarer stant, amounting to exclusive ownership of a market); another merely prevents the copying of a specific technology. In the latter case, competitors may still enter the market, simply offering a solution based on a different design. Ironically, as private sources of capital come to dominate funding of science and innovation more broadly, they thwart the synergies which arise when multiple points of tinkering and experimentation mutually iterate and collaborate — one of the foundational myths of the new economy. (Tyfield 2012:153). My ethnographic study shows the ways that startups “put a wall around the technology” affect the way angel investors (early-stage venture capitalists) make investment decisions and establish valuations. It is clear that in the biomedical field, “the financing of science shapes science in important ways” (Birch 2017), and while the stakes may appear lower in the (digital and consumer) “tech” sector, I argue that it constitutes the private sector’s plundering wound, which sends outwards the infant enterprises to commodify new domains of life qua the very process of the expansion of capitalism. References Birch, Kean. (2017). Financing technoscience: Finance, assetization and rentiership, in D. Tyfield, R. Lave, S. Randalls and C. Thorpe (eds), The Routledge Handbook of the Political Economy of Science. Mason, Paul. (2015) Postcapitalism: A guide to our future. Allen Lane: McChesney, Robert. (2013) Digital Disconnect. The New Press. Tyfield, David. (2012) The Economics of Science, Volume 2. Routledge. 8VC, “Our Values.” https://medium.com/8vc-news/8vc-our-values-aebc67ce1708.67u2ugy9c

Academics (and others) take for granted that knowledge is a public good, and because academics are normally seen as the primary knowledge producers in society, they are seen as by definition producers of public goods. However, this syllogism leaves a lot to be desired. In particular, it ignores the role of academic rentiership, which is captured in the high entry and access costs associated with the production and distribution of academic knowledge. These are in turn tied to a strongly path-dependent epistemic sensitivity that privileges (certainly in writing practices) ‘standing on the shoulders of giants’ over finding the shortest route to the top. I shall argue that while academics certainly do produce knowledge, the privileging of ‘research’ over ‘teaching’ in the academy effectively means that we produce knowledge as a club good, not a public good. I shall explore the consequences of this claim, including the prospect that we might need a version of a ‘cultural revolution’ within the academy that actively removes the access costs to knowledge which are largely imposed by a journal-driven culture which rewards relevance to a self-defined ‘cutting edge’ of research over the general public.

“Fencing in” Tech Startups’ Strategies for Capturing Value

Jacob Hellman

In our distaste for rentiership, or as media critic McChesney calls it, “shakedown”, it is parasitism which we loath. Yet if information ought to be a non-appropriable and non-rival good, with effectively zero marginal cost of production, then it should undermine the profit mechanism on which capitalist enterprise depends. (Mason 2015). Drawing from ongoing fieldwork among early-stage startups and their investors in southern California, his presentation wrestles with the tension that for diminishing marginal cost technologies, rentiership becomes the business model. Has rent capture, then, merely shifted from old money to new technologies, the few which succeed will do so by erecting anti-competitive barriers around their own technologies. To do so, I have observed, tech startups rely on two strategies, based on different types of patents: one keeps competitors from doing what they are doing (a rarer stant, amounting to exclusive ownership of a market); another merely prevents the copying of a specific technology. In the latter case, competitors may still enter the market, simply offering a solution based on a different design. Ironically, as private sources of capital come to dominate funding of science and innovation more broadly, they thwart the synergies which arise when multiple points of tinkering and experimentation mutually iterate and collaborate — one of the foundational myths of the new economy. (Tyfield 2012:153). My ethnographic study shows the ways that startups “put a wall around the technology” affect the way angel investors (early-stage venture capitalists) make investment decisions and establish valuations. It is clear that in the biomedical field, “the financing of science shapes science in important ways” (Birch 2017), and while the stakes may appear lower in the (digital and consumer) “tech” sector, I argue that it constitutes the private sector’s plundering wound, which sends outwards the infant enterprises to commodify new domains of life qua the very process of the expansion of capitalism. References Birch, Kean. (2017). Financing technoscience: Finance, assetization and rentiership, in D. Tyfield, R. Lave, S. Randalls and C. Thorpe (eds), The Routledge Handbook of the Political Economy of Science. Mason, Paul. (2015) Postcapitalism: A guide to our future. Allen Lane: McChesney, Robert. (2013) Digital Disconnect. The New Press. Tyfield, David. (2012) The Economics of Science, Volume 2. Routledge. 8VC, “Our Values.” https://medium.com/8vc-news/8vc-our-values-aebc67ce1708.67u2ugy9c

Indigenous Peoples and Biocolonial Appropriation of Rents and Value in NGS Forensic Genetic Technology Development

Mark Munsterheim, University of Windsor

A case study of the development of NGS forensic genetic sequencing technologies reveals appropriation of various forms of rent and surplus value derived through use of samples, cell lines or data to represent Indigenous peoples, including future, living and dead generations (what legal theorists call the corporate body). This appropriation depends on the violation of involved Indigenous peoples’ sovereignty and self-determination and defies contemporary ethical/legal norms of mutual reciprocity including ongoing informed consent, Indigenous peoples’ control over data, secondary usages and commercialization. From upstream primary research to downstream commercialization, these forms include: 1. “Population resources”. Scientists’ exercise de facto ownership of Indigenous peoples’ cell lines and samples. Immortalized cell lines are grown in “unlimited” quantities. 2. Development. Panels of ancestry informative SNPs (AISNPs) and other genetic markers are tested on Indigenous peoples’ cell lines and data. 3. Robustness Proxies. Various Indigenous peoples are cast as proxies for maximal genetic difference. For example, Yale University’s Kenneth Kidd states, “We have deliberately included several small isolated and inbred populations from different geographic regions” and such inclusion functioned “as a test of the robustness/generality of the results” (Kidd, 2011:44,58). 4. Commercialization. Illumina’s MiSeq FGx forensic genetic sequencer system integrates a panel of 55 AISNPs developed by Kidd et al. 5. Validation of Systems. Former FBI Labs scientist Bruce Budowle and colleagues tested the Illumina MiSeq FGx on samples taken from the Yavapai of Arizona many years ago. 6. Datamining. Parabon’s Snapshot DNA Phenotyping service uses Indigenous peoples’ data mined from publicly funded research.

Chair: Kean Birch, York University

Discussant: Alan Irwin, Copenhagen Business School

290. Sensing the Liveliness of Things and the Fragility of Life: Bringing Care and Maintenance Together II

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Exeter

In 1969, Mierle Laderman Ukeles wrote the “Manifesto for Maintenance Art” where she associated mundane practices of maintenance (both at home and at work) with the broader area of care. Although both activities, she explained, are vital in the daily production, continuation, preservation of life, maintenance and care have been typically characterized as unworthy and merely reproductive activities carried out by women and low-paid workers. Recently, several STS scholars have demonstrated that investigating care (Mol, Murphy, Pols, Puig de la Bellacasa) and maintenance and repair (Cállen and Criado, Denis and Pontille, Dominguez Rubio, Jackson, Rosner, Ureta) could help decentor traditional issues in STS, such as agency, knowledge production, or the innovation and performativity of sociomaterial orders, as well as open up new ways to discuss politics and ethics. Though some of these works have explicitly discussed the relationships between care and maintenance, the encounters are still timid, and the discussion exploratory. We would like to use this open panel as a meeting point for those two conversations, and a way of teasing out the larger ethical, political and methodological consequences that can arise from the reflections on care, repair and maintenance could have for the renewal of STS sensibilities. To do so, we invite contributions across different domains such as arts, architecture, urban studies, media studies, organization studies, and of course STS.

Participants:

Valuable Buildings, Disabled People: Tinkering with Maintenance and Care in Situations of Socio-Material Oppression Michal Synek, Masaryk University / Charles University
In residential institutions for people identified as dependent on care, maintenance and repair are inextricably intertwined. The asylums’ buildings need constant upkeep and to get necessary resources, they also need people to live in them, functioning thus as vacuous spaces drawing in inhabitants supplied by various disability labels. While providing shelter, they also complicate caring, as their “cultural” or “economic worth” prevents their transformation into places of dignified living. From a perspective of STS, this case presents twofold challenge. The first arises from difficulties to conceptualize failure. If we truthfully describe the existing modes of ordering maintenance and care, while respecting associated values, how to understand situations where one of these activities stand in a way of the other? Is strict differentiating between care and maintenance, based on valuing humans above non-humans, the only ethical solution? The second challenge consists of using alternative conceptualizations of maintenance and care to explore other, less radical versions of the controversy. If both processes are described as tinkering, which aspects of human/non-human relationships come into view? If both the buildings and people living in them are seen as fragile and mutable, could the edifices forming the disability Gulag (McBryde Johnson) become allies of disabled-identified? This paper combines strengths of diplomatic ethnography (Latour) and empirical ethics (Mol, Pols) to theorize maintenance (Cállen and Criado, Denis and Pontille) and care (Law, Mol, Moser) in situations of socio-material oppression and to envision more positive relationships between highly valued mutable buildings and disabled and fragile people.

Re-Pairing Bodies, Users and Devices Peter Fuzesi, Lancaster University

My presentation explores how recent scholarship on care, repair, and maintenance can help to re-orientate and de-center the figures of user and use, and the socio-material orders they enact. I focus on how maintenance and repair are positioned as a technological practice at the intersection of dual boundaries: On the one hand, practices of repair are distinguished from those of design and use. And whilst notions of design and use are used to describe “normal” technological practices, breakdown, repair and maintenance are seen as exceptions, and the work that goes into keeping things in a working condition/order have a tendency to disappear (Strauss and Star, Jackson). On the other, everyday parlance and professional and policy discourses and practices maintain a distinction between care for living bodies and the maintenance and repair of inanimate objects. What happens, then, to repair and maintenance in the context of health-care? How is the meaning and practice of this technological work transformed at a site, where the user of technology is identified as needing care? I draw on ethnographic data on service workers who deliver personalised assistive communication systems for people with extensive impairments who could be easily identified as cyborgs. This data gives important clues to unsettle pervasive notions of use and user, which assume that the user is non-disabled and not in need of care. In a case where both the user and technology are cared for, repair and maintenance undergo important shifts: Here I focus on how, personalization necessitates a modular product ecology, personalized communication systems have to be continuously calibrated, re-assembled customised and transformed. This, then, troubles the established distinction between design and repair. Far from becoming peripheral or invisible, repair remain central and salient features of technological practice. Further, recognizing the changing needs and conditions of users invites an ongoing tinkering and reconfiguration of systems where repair moves beyond fixing things and becomes a site of transformation. Due to the constant reconfiguration through repair, assistive communication systems exist as vulnerable (Denis and Pontille) or unstable and open entities.

Art under Nanotechnological Care: Bridging Conservation and Scientific Practices Grace Kim, Massachusetts Institute of Technology (MIT)

Physical chemists today are developing new nanotechnologies to help conserve objects of art and cultural heritage. In this paper, I discuss my ethnographic fieldwork in a laboratory at the University of Florence, where Italian scientists examine modern and contemporary artworks with the aim to reframe art’s materiality to the nanoscale and its future to nanotechnology’s promises. I investigate how these chemists incorporate input from their collaborators in conservation into their own particular understanding of “nature” to produce a range of nontoxic tools — such as nanoparticles, microemulsions, micellar solutions, and gels — with which to save and preserve cultural objects of “aura.” Laboratory knowledge and practice are enrolled here to help clean, for instance, Federico Fellini’s ink drawings on paper and Pablo Picasso’s paintings. Inspired by a history of interdisciplinary cooperation that grew in the wake of the 1966 flood of the Arno River — a disaster which killed over a hundred people and damaged countless heritage artifacts — these chemists abide by the laws governing chemical substance and intermolecular forces to help differentiate between what is and is not worth preserving about artworks and to advance more ethical ways of protecting them. This paper intends to shed light on how technoscientific expertise and innovation are said to improve upon the traditional materials and craft techniques used to care for and extend the life of art.

Configuring Repair: The Case of the MV Veteran Donny Persaud, Memorial University Of Newfoundland

Periods of infrastructural breakdown have been used as an entry into tracing how publics and users are configured during and after the implementation of new technologies. In such instances, infrastructure is taken as the material embodiment of a prescribed social order, an order whose stability requires constant work to preserve. This work corresponds to the repair and maintenance work performed by skilled technicians and labourers recognized in a growing body of literature exploring the intersections between sociomaterial vulnerability, care, and these practices. Through an ethnographic analysis of the breakdowns of one of the Government of Newfoundland and Labrador’s new ferries, the MV Veteran, I illustrate that the ship’s manufacturer functions as an obligatory passage point controlling the distributions of action behind the repairs of the MV Veteran. Moreover, the case of the MV Veteran in contrast to conventional user-designer studies emphasizes on innovation and stability foregrounds the new vessel’s breakdowns and vulnerabilities as they are readily anticipated by its manufacturer and crew. I argue that the most relevant actors for repair in this case are not the vessel’s crew or its technicians given that practices of these fixers are configured by the geographic, temporal, and institutional controls on their actions as stipulated by the manufacturer’s warranty. These regulations serve to further discussions around the ethics of repair and maintenance given the tensions between the designated authenticity of these practices as manufacturers seek to control the modular character of their products and those responsible for the vessel’s immediate operations as they look to uphold their obligations to the communities served by the vessel.

The Germ and the Thaw: Maintenance, Performance, and Care in Seed Banking Xan Chacko, University of California, Davis

In the late twentieth century seed banking has emerged as the foremost endeavor in combatting large-scale loss of plant biodiversity. Since the global loss of biological diversity is believed to have arisen due to anthropogenic encroachment, the protection of nature is also being taken up as a human responsibility. While other forms of conservation focus their attention to salvage and reclaim spaces of ecological variety, overwhelming species and habitat loss is taken as ataxic and irremediable in seed banking. In practice, nations and institutions have taken up the mantle of seed saving by varying means and ends, but there is consensus that the activity of plant genetic resource conservation is critical to the future of life on the planet, and our access to food in a troubled future climate. The blurring of lines between the protection of human life and life in general
is purposeful and troubling. My project interrogates the hopeful conceit of seed banking, which is the belief that seeds will always be viable once safely ensconced in their cryogenic home. Seeds in the banks are fertilized embryos of plants that existed in the past, and at the same time embodiments of plants will be realized as inhabitants of the future. Their existence in this liminal state holds together the tension between hope and despair. I study the practices of seed scientists to understand how they negotiate this tension and learn to care for seeds. Seed scientists struggle to make sensible the loss of viability or ‘germ-ability’ since the results of storing seeds in freezers can only be truly known by trying to germinate the seed. This test both removes the sample from the larger collection and destroys it. In addition, I explore the epistemological limits of using samples of seeds to provide viability information for a whole collection. By studying the experimental care practices espoused by scientists involved in the maintenance of seeds, I study how ‘life’ is being prepared for the future. Based on eighteen months of fieldwork, this paper challenges the assumption that once seeds arrive at the bank, they can be considered saved. I will focus on one particular moment of material-semiotic knowledge production – the germination test – to think with the theories and practices that the seed scientists evoke to imbue hope and liveliness into a seemingly mundane step in the maintenance of seed viability.

Chair: Fernando Dominguez, NYU

291. Property Matters

Traditional (Closed) Panel 11:00 to 12:30 pm Sheraton Boston: Floor 3 - Fairfax A

Despite its recent interest in markets and economies as well as its longstanding focus on things, STS has so far largely neglected property as an object of its research. When property is brought up, it is usually in the form of property rights which, in turn, are mostly understood as intellectual property. But what about the property matters itself? Are they, like John Locke's acorn, just patiently waiting to be appropriated, leaving everything to lawyers, courts, and legislatures? Or do they also get a say in how, and under what conditions they will enter into a property relationship? This panel invites contributions that closely engage with the nature of property objects and the societies, economies, and institutions they summon. Understanding property in a broad sense — from locked bikes to research papers to kidneys — it asks what it takes for these things to work as property. Apart from laws and rules, which technologies demarcate, compose the chain of custody (Lynch et al, 2008). Police is the omnipresence of property is sharply contrasted by its absence from most of social theory. But how to grasp what property is about? While most accounts talk of property as a bundle of rights or relations between things and people, they often overlook the intricacies and the inventiveness of doing property. While rights are too narrow a concept for understanding property, unable to account for name tags and key chains, relations are too broad and symmetrical, making it difficult to distinguish mothers from toastasters and children from pets. This talk is an attempt to understand property as a form of technology that has to be engineered, maintained, and mastered, and yet constantly fails in various ways. Contrary to some economic theories, the problem with property is not so much that not everything should be owned, but that many things are difficult to own. At the same time, there are a lot of property objects that work just fine even in the absence of any formal or informal property rights. Based on an ethnography of the seed industry, this contribution makes a link between the modern concept of private property, markets, and their recent marginalization through new forms of property. The drive to make private property work at all costs risks sacrificing the accomplishments of the market economy.

Twilight Zones – Scientific and Tacit Practices at the Crime Scene

Susana Costa, Centre for Social Studies

In ST&S studies forensic evidence is seen as material and social (Kruse, 2016). Part of an apparatus (Foucault, 1977, Toom, 2012), forensic evidence combines bodies, traces, technologies, legal, scientific and administrative practices (Kruse, 2010, 2012). If the use of technologies and scientific knowledge can provide a more robust and credible character to forensic evidence it is also dependent on social and legal practices of the actors that compose the chain of custody (Lynch et al, 2008). Police is the first element of this chain that (desirably) ends in court. The documents that police agents produce mediate the understanding between the crime scene and the court (Wyatt, 2014). Based on the formal rules, the police gives visibility to the narrative and assigns legitimacy and credibility to its performance. However, dealing with impure objects, this activity is liable to improvised practices. The decision to give to “see” certain aspects of the narrative, leaving others in a twilight zone may have repercussions in the production of robust evidence or a verdict (Wyatt, 2014, Kruse, 2016). Inserted in my postdoctoral research “Trajectories of traces at the crime scene”, funded by the Portuguese Science and Technology Foundation and based in a qualitative analysis of Portuguese judicial proceedings of different criminal typologies (1998 to 2012), in this presentation I will explore how the police is formed on what they see and what is unseen, travels between epistemic cultures (Knorr Cetina, 1999). I argue that in the Portuguese criminal investigation the production of a narrative with legal meaning in the court can be conditioned by the coexistence of epistemic subcultures of the police work (different police forces attending and intervening at the crime scene), with different knowledge, practices and different ways of seeing the same objects. The interpretative resources used by the police depending on their degree of technological enthusiasm can miscontribute to the credibility of forensic evidence achieved. In this way, more than contributing to the robustness of the evidence, police work may contribute to give visibility to a fallible combination of scientific and tacit practices (Lynch et al,
Making Sense of Climate Policy II

The past 60 years has witnessed the successful technology transfer in China, and the continuous transform of ideology has exerted great influence on the trajectories of technology transfer. This article explores the technical history of Hongqi limousine, one of the most famous reverse engineering projects in China. Considered the “spirit of Chinese automobile”, the Hongqi Limousine is spotted at significant political events in the service of Chinese high-ranking government officials. It is also known as a “living fossil” that was born during the Great Leap Forward in 1958 and has witnessed the changing fortunes. In Chinese, Hongqi means “red flag”, symbolizing Communist ideology. If Hongqi went into bankruptcy, it would indicate political failure. Therefore, the “red flag” must continue to wave as long as the government stands. The brand has always stood, but the technical trajectories and changed as the legislature ideology transformed. We tried to give the original appearance to history by textual research and fieldwork. By the typical case of Hongqi limousine, our research focuses on technology transfer and indigenization in modern China constructed by social factors as ideologies.

Participants:

Climate Policymaking at the City Level: Findings from Three Canadian Cities (Vancouver, Calgary, and Toronto) Julie Hagan, Université Laval; Louis Guay; Yuan Zheng Li, Laval University

The recent involvement of cities in climate governance raises questions regarding multi-scale policy-making across levels of governance. How do city-level actors and international institutions create synergies? How are environmental efforts coordinated between the central state and major cities? At the local level, how are citizens and NGOs engaged in the politics of climate governance? What is the role of scientific expertise? To answer these questions, we undertook a comparative case study analysis of environmental governance in three major Canadian cities (Vancouver, Toronto, and Vancouver). First, a content analysis of publicly available policy and planning documents allowed us to identify predominant trends. Second, in-depth interviews were conducted with 20 actors involved in urban environmental governance (e.g. staff, councilors, NGOs), then interview transcripts were analyzed using a discourse analysis framework. Drawing from our preliminary findings, this presentation will posit that cities engaged in climate governance have relied heavily on science, sometimes to the detriment of the social and political dimensions. Within Canadian cities, mitigation efforts are being drafted in terms of GHG reduction targets and timetables, while adaptation efforts are often being coupled with the science-heavy domain of public health. This focus on science safeguards against the ever-looming threat of climate denial and allow for accountable and goal-oriented governance. However, addressing issues which do not lend themselves easily to quantification appears challenging. Thus, climate governance at the city level shows more sensitivity towards scientific facts than towards more political aspects such as public involvement, recognition of vulnerable groups, equity, and justice.


A wide variety of social actors have used the courts to test or establish novel theories of legal responsibility and make climate policy. Science has been central to some of these suits, but not all. This research investigates climate litigation as a driver of policy change and an arena through which scientific evidence is negotiated. Most centrally, our research explores: 1) how social actors engage with the courts, 2) the role and importance of science in that process, and 3) the case characteristics that affect outcomes. We use a mixed methods approach to address these topics. We constructed a database of all climate change lawsuits from 1990-2016, resulting in 651 cases. Descriptive statistics were generated and regressions were run to identify relationships between variables that could help explain outcomes. We conducted 65 interviews with litigants, scientists, and social movement advocates involved in cases. These interviews were coded in QSR NVivo and themes were identified. We also focused on 14 pivotal cases in which science was critical, and analyzed court documents therein. Our findings demonstrate that science is increasing in focus in cases where both climate and non-climate science of relative importance. Air, coal-fired power plants and biodiversity cases have been the most common with coal cases decreasing after 2009, and air and biodiversity increasing after 2011. The proportion of anti-regulation suits has increased over time. These findings describe the landscape of climate litigation, its role in social movement activism, and the importance of science to both. It is the only such study to-date.


Scientists are highly respected for their contribution to the economic development, national defense, and technology advancement. However, scientists that research anthropogenic climate change are constantly being challenged. In order to
Collaborative and Participatory Science

Participants:
The PHENIX Collaboration created between 2000 and 2014 and conference talks. This case study demonstrates a macro trends in the papers' authors and conference speakers. Thirteen percent of the PHENIX Collaboration members are full time contributed scientists. Thirty percent of the members are young scientists and transferred to other organizations. Existing collaborations and support relationships are preconditions to conduct data analysis, produce a paper and become a conference speaker. I aim to contribute to a growing debate about incentive systems in science collaboration and academic career path.

Disciplinary Capture, Path Dependence, and Resource Management

Evelyn Brister, Rochester Institute Of Technology

Many scientific problems—in particular the kinds of problems addressed by applied sciences such as agriculture, medicine, environmental science, and engineering—require collaborative, interdisciplinary solutions. Many interdisciplinary collaborations appropriately aim for multidisciplinarity: researchers contribute their expertise to a larger project and do not call into question question different disciplinary standards and assumptions. However, some complex problems require collaborations that, in order to construct novel solutions, must transform or integrate disciplinary frameworks. Such interdisciplinary integration is a rare achievement. One significant barrier is disciplinary capture, which occurs when an attempt at integrative interdisciplinarity defaults to an established disciplinary approach, one which prioritizes the concepts, methods, and evidentiary standards of a dominant discipline. Disciplinary capture is what happens when an attempt at integrative interdisciplinarity defaults to a single established disciplinary approach, one which prioritizes the concepts, methods, and evidentiary standards of a dominant discipline. We see this when social scientists complain that they are often assigned a service role in collaborations with natural scientists. In order to better understand disciplinary capture—and how it may be avoided or repaired—I examine whether disciplinary capture is path dependent. Path dependence describes how political or economic processes unfold over time, such that historical contingencies have an irreversible impact. An outcome is path dependent only if 1) depends on the timing and sequence of contingent decisions, 2) has increasing returns, and 3) is irreversible. The concept of path dependence can be used to analyze how, for collaborative interdisciplinary teams, there are a number of decision points at which strategic decisions may give one discipline "first-mover" priority over another. These decisions may then undermine integration by framing the process so that later decisions fall into place in a way that favors—and eventually "locks in"—the standard practices, concepts, and methods of one discipline. A case study from natural resource management illustrates this effect by demonstrating how the early involvement of a social scientist in designing research studies led to a transformation in the framing of resource management questions, interventions, and applications. I examine the policy implications for support of interdisciplinary research teams.

Chair: Evelyn Brister, Rochester Institute Of Technology

Beyond Identification: Biometrics and the State

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Gardner B

From unlocking personal smartphones and designing national IDs and passports, to tracking identities at entry points and processing biometric-based data, biometric technologies have become a ubiquitous presence in our daily lives. Biometrics are not only used for identification and authentication, but also for creating an online identity, a form of personal data that is increasingly being collected and used in the digital age.

Authorship and career in a High Energy Physics experiment: Darrin Durant, University of Melbourne

This case study explores how high energy physics scientists' perceptions of academic career rationales influence how they relate to cooperation within a large research group. In the field of high energy physics, one consequential dimension of these perceptions is the high value assigned to top-level conference speakers, because there is no first author in their publications. Since all authors are treated equally, its papers have 500 authors listed in an alphabetical order. This strong focus on conference speakers is influential for how scientists contribute to the collaboration. To ensure a conference speaker, they articulate a preference for working mainly contributing data analysis. In this case study, I examine published 140 papers which high energy physics experiment "The PHENIX Collaboration" created between 2000 and 2014 and conference talks. This case study demonstrates a macro trends in the papers' authors and conference speakers. Thirteen percent of the PHENIX Collaboration members are full time contributed scientists. Thirty percent of the members are young scientists and transferred to other organizations. Existing collaborations and support relationships are preconditions to conduct data analysis, produce a paper and become a conference speaker. I aim to contribute to a growing debate about incentive systems in science collaboration and academic career path.
passports, to conducting criminal investigations and verifying financial transactions, the use of fingerprint recognition, iris scans, and other biometric modalities in ID cards, databases, and scanning devices is increasingly becoming part of governing social life. The use of biometric identification technologies not only places the locus of identity onto the quantified human body, but also intervenes in and (re)configures a variety of sociotechnical relationships. These include, but are not limited to, relationships across: security, risk, and civil liberties; exclusion, criminalization, and citizenship; data, subjectivity, and ontologies of the body; power, expertise, and resistance to surveillance; and histories of biometrics, antecedent identification practices, and techno-optimistic (or pessimistic) future visions of achieving “unique” identification. The ubiquity of biometric technologies as preferred methods of identification, and their inscription into everyday digital infrastructures, presents opportunities to critically examine how the use of biometrics constitutes new conditions of governance and resistance. This open track welcomes papers that investigate how identification technologies, particularly those based on biometrics, are reshaping the governance of social life across national, social, political, administrative, institutional, infrastructural, and technological contexts. It aims to interrogate the socio-cultural and technopolitical dimensions of biometric identification technologies beyond their usual framing in terms of security or surveillance by bringing insights from STS into conversation with perspectives in surveillance studies, critical security studies, information science, and other fields.

Participants:

Biometric Registration of Refugees in Greek Borders in Times of “Crisis” Vasilis Vlassis, IT University of Copenhagen

This paper examines the way biometric registration schemes used in the context of the EU migration policy affects the ontology of border venues with a focus on the Greek borderline. Eurodac is a European fingerprinting database for identifying asylum seekers and undocumented migrants. It has been active since 2003, as a technological tool for implementing the Dublin regulation. According to the Dublin regulation, every asylum seeker may apply for asylum to only one member-state, that state being thus responsible for his/hers asylum application. Eurodac has been a center of controversy since its launch. In June 2015, Eurodac’s data became available for forensic use from Interpol and national police forces “only in specific cases, under specific circumstances and under strict conditions”, practically transforming it from a asylum administrative tool to a forensic database and amplifying controversies around it. Eurodac as a EU policy tool and biometric registration as a method, shape and enact human subjectivities. This process however, is not a rigid or stable one, but is in turn at constant redefinition in relation to EU law and policy changes as well as international political developments. This paper examines the way Eurodac’s role was altered during the great influx of refugees/ migrants and the partial suspension of the Dublin regulation the last year. More particularly, based on fieldwork conducted in the Greek islands of Chios and Lesvos in March 2016, I will discuss the politics embedded in the system and how it interplays with the reality shaped in border and refugees’ registration venues. Theoretical and analytical tools are drawn mainly from surveillance, security and border studies.

Imagining a State and Society Transformed: Fingerprinting and Governance in Early Twentieth-Century China Daniel Asen, Rutgers University - Newark

This paper examines the early history of fingerprint identification as Chinese governing praxis through the case of the Fingerprint Society, a professional association established in 1920s Beijing under the Ministry of Interior's police academy. By analyzing a range of archival and published materials, this paper explores the ways in which members of this association imagined the new state and society that were expected to emerge following the successful implementation of fingerprint-based governance in China. For members of this association, fingerprinting was not simply a technique for identifying individuals; rather, it represented the foundation for a new set of relationships between individuals and the state, officials and professionals, and even between China and foreign countries. Fingerprinting promised a more effective state apparatus, new mechanisms of trust and accountability in Chinese society, and new protections for the rights of citizens. It was also hoped that implementing fingerprint identification would play a part in convincing Western countries and Japan to give up their extraterritorial legal privileges, thus advancing China's struggle for full sovereignty. While these ideal visions of fingerprint-based governance were not realized during the 1920s, members of the Fingerprint Society did anticipate lasting themes of state-building, sovereignty, and citizenship that would emerge in relation to fingerprint identification over subsequent decades. By exploring this previously unexamined chapter in the history of fingerprinting, this paper thus sheds light on the imagination and practice of fingerprint-based governance and the ways in which the authority of such expertise was conceptualized and asserted in the twentieth century.

Political Economy of Digital Biometric IDs: A Case of Aadhaar in India Bidisha Chaudhuri, International Institute of Information Technology Bangalore

Post-Cold War governance reform initiatives that have spread across the global south, emphasized efficiency of service delivery, transparency, accountability, partnership approach with market and civil society organizations ((Chaudhuri, 2014). This led to an increasing proclivity for leveraging digital technologies for governance mechanisms. Growing regard for digital biometric identification system is symptomatic of this emerging trend which was further vindicated by the national security concerns in the aftermath of 9/11 (Breckenridge 2005). India’s Aadhaar project has emerged as one of the most ambitious biometric Identification project (Breckenridge 2014). It not only creates an overarching information infrastructure in which the individual become accessible to the state and the market alike but also provides a single point entry into a digital ecosystem that is gradually becoming necessary for accessing any kind of goods and services in India (Rajadhaskhyaya 2013). This paper examines firstly, how state is changing its position in identifying beneficiaries and in reaching out to those beneficiaries; secondly, how beneficiaries/citizens are coping with new requirement of getting a digital biometric ID and making themselves legible for welfare; and thirdly, how market and civil society organizations get involved in the above two processes. Drawing on secondary literature on governmentality and e-governance and primary research (interpretive case study method) on everyday practices around Aadhaar in two Indian states, this paper shows how digital biometric IDs are changing the relationship between state, market and individual/society at large. The overall objective of the paper is to underline the recursive relationship between technology and politics.

Writing, Signing, Scanning. Redistributive Justice and the Politics of Visibility in the Era of E-Governance Ursula Rao, University of Leipzig

This paper focuses on the social and conceptual struggles following on from a shift in management systems from paper based record keeping to biometrically enabled e-governance. Using the public distribution system in Delhi, India as a case study, I will explore how the use of biometric technology repositions beneficiaries in systems of governance and impacts the manufacture of identity and transparency. Customers of the public distribution system are known through at least for different registers. They are known as abstract category of people living below the poverty line, as certified individuals holding identification (ration) cards, as known individuals in a neighbourhood and as bodies available for biometric identification. Ideally these representations should be congruent. Yet, each has its own reality comitnant with the technology through which it comes into being. Their difficult integration during processes of verification creates a rift between proponents and opponents of biometric technology. While the former fetishize the body as the original source of knowledge, dissatisfied users and shopkeepers mobilize the notion of writing as truth-making mechanism. The authority of the signing subject is pinned against the unpredictable operations of failure prone
In current policy imaginaries researchers are expected to respond to societal needs and ‘grand challenges’, whilst at the same time maintaining standards of scientific excellence. In Europe these calls are being invoked under the banner Responsible Research and Innovation (RRI) (von Schomberg 2013). Arguably, one of the more novel aspects of the RRI discourse is in signaling a shift from the governance of risk to the governance of research and innovation itself (Felt et al 2007). Ideal-type representations thus suggest a shift away from retrospective outcomes-based modes of risk governance (associated with accountability, liability, and evidence), toward embedding future-oriented dimensions of responsibility like anticipation, care and responsiveness as core values throughout the research process (Stilgoe et al 2013, 1569). Through promoting such virtues, RRI is thought to promise ‘greater potential to accommodate uncertainty [of research and innovation] and allow reflection on purposes and values’ (ibid). At the same time, many structural, institutional, and epistemic conditions are being widely reported which would appear inhospitable for certain modes of care and responsiveness to flourish in academic work practices. These include: hyper-competition for dwindling state resources; narrowing career opportunities; commercialization and privatization of knowledge production and scholarly communication infrastructures; epistemic demands for positive results (in some fields); perceived acceleration of academic life and a loss of time to reflect; and the rise of new metric assemblages for auditing academic performance. This session explores how practices of anticipation, care and responsiveness are being variously experienced by researchers themselves, and enacted in their knowledge-making practices.

Participants:

Caring for the group – and beyond? Enhancing responsibility through funding structures **Maja Horst, University of Copenhagen**

Advocates of RRI usually focus their inquiries on how to improve scientists’ ability to anticipate, care and be responsive to values and issues of concern in society, thereby (albeit implicitly) portraying science as having a deficit of anticipation, care and responsibility. However, when we ask scientists themselves what they feel responsible for, we uncover that they believe themselves to have a number of responsibilities, of which caring for the research group seems to be by far the most important (Davies & Horst 2015). Taking this as a starting point, the paper investigates how funding structures can include the wider RRI agenda in a way that is supportive of researchers’ own experiences of responsibility rather than being seen as ‘yet another administrative burden’. The paper specifically uses a recent evaluation of the Norwegian Research Council’s large-scale funding programs Nano2021 and Bio2021. On a structural level, these programs demonstrate how difficult it can be to include wider aspects of anticipation, care or responsiveness in ways that align with scientists’ primary motive in applying for funding: to continue the work of the group and help young scientists establish fruitful career tracks. In particular, it is important how the need for such wider RRI-aspects is presented to scientists and how it is evaluated in peer-review processes. A crucial point is that the RRI-agenda has to be translated into a processual relationship rather than a set of boxes to tick or standard requirements for actions.

Imaginaries of responsibility and their performances **Gisle Solbu, Norwegian University of Science and Technology; Heidrun Am**

In recent years Responsible Research and Innovation (RRI) has emerged as a policy idea aimed at fostering research that better aligns to needs and desires of society. In this paper, we want to elicit efforts of translation between new demands directed towards scientists currently channelled through RRI, and how such dimensions are enacted in scientists’ practices. The talk will first outline imaginaries of responsibility in Norwegian science governance policies on RRI. Based on 37 in-depth interviews with scientists within bio- and nanotechnology in Norway, we will then elicit how accounts of what we label native enactments of responsibility in the scientists’ research practices relate to these imaginaries. How do scientists themselves imagine, reflect on and address what they identify as RRI dimensions in their work? And in which respect are these imaginations performative for scientists’ practices? The paper shows that scientists present themselves as eager to be useful for society, quite reflective on ethical dimensions, and concerned with safety aspects. Still, they are fairly unreflected when it comes to the societal context and aspects of co-production of science and society. However, an acknowledgement of the power relations of and in R&I and a rejection of technological determinism would be a precondition for ideas on broad democratic governance and collective responsibilities to be able to catch on. In this presentation we thus ask, what can be an important first step for potential translations of RRI?

Conflicts, contingency, and funding strategies in research on ‘grand challenges’ **Wolfgang Kaltenbrunner, Munich Center for Technology in Society (MCT)**

In the course of the last decades, the funding structure of academic research has undergone profound changes. Many public science systems have gradually reduced university block funding, thus forcing researchers to attract funds from commercial applications and a complex array of competitive grant schemes. A particularly interesting development is the increasing focus of national and supranational funding bodies on thematic grant programs, for example under the heading of ‘grand challenges’ and ‘mission-oriented research’. These are meant to foster knowledge and technologies that are of particular importance to society, but at the same time perhaps unlikely or less quick to develop from traditional disciplinary research. The aim of this paper is to provide a comparative analysis of the funding strategies of two German university departments that heavily rely on such grant programs. One is specialized on the chemistry of biogenic resources, and the other one on automotive engineering research on electromobility. Drawing on semi-structured interviews with department members, my analysis will focus on the new forms of articulation work that researchers in these institutions need to perform. Thematic funding problems in fact imply both opportunities and challenges. Organizing research agendas around topics that promise longer-term interest by funding bodies potentially reduces budgetary uncertainty. At the same time, field-specific conflicts between local research practices and what is defined as topical work by grant-giving bodies may arise. This includes for example diverging research priorities between public, academic and private stakeholders, as well as difficulties to reconcile grant-funded project work with disciplinary career requirements.

Anticipation between Serendipity and Audit. Predicaments of responsible practice in the life sciences **Ulrike Felt, University of Vienna, Department of Science and Technology Studies; Maximilian Fochler, University Of Vienna; Lisa Sigl, Research Platform Responsible Research and Innovation in Academic Practice, University of Vienna**

Anticipation is a key dimension of RRI. However what it could mean in research practice remains vaguely defined. Building on the rich STS literature on how futures are imagined in different contexts and how this drives techno-scientific choices, we need to ask in more detail what meanings responsible anticipation
could have for researchers’ practices. RRI prompts researchers to reflect and anticipate what their own research might mean in wider contexts beyond the lab, the funding system or inner scientific exchanges. But how can this demand be realised in uncertainty-intensive areas like basic life science research? And how might this be different from other practices of anticipation researchers engage in? Researchers are expected to play anticipation games, e.g. through writing promises of future societal impacts of their work into proposal requests. However, this mostly happens in contexts related to audit and competition. They are virtually never asked to think this through the question of (their) responsibility. In our presentation, we will explore researchers’ reflections on what responsible anticipation could mean in their practices, and how they relate this “extended anticipation” to other established forms and discourses about anticipation. These include complying to audit logics as well as making space for serendipity (and thus keeping up the autonomy of scientific development). We build on seven workshops with life scientists about aspects of RRI in academic practice.

Chair: Alex Rushforth, CWTS, Leiden University

296. In the Making, On the Move: Global Perspectives on Technology Appropriation II Traditional (Closed) Panel 11:00 to 12:30 pm Sheraton Boston: Floor 3 - Hampton B

Stories about technology are often narrated from the myth of the hero: genius men who, in specific moments of lucidity that reflect the feeling of an era, rescue an invention, an innovation, for the professions. Different models have been proposed to overcome this hero narrative: e.g., changing the point of observation of history, or focusing on controversies, trajectories or agencies that explain the momentum, impact or evolution of an artifact or system. This panel proposes that stories of artefacts and systems are (re)sensitized through the study of technological appropriation, a process that allows us to observe these trajectories from an anarcho perspective, with an emphasis on the global diversity of user groups, sites, contexts, platforms, infrastructures involved in their access, learning, incorporation and transformation of technologies in use. The rewriting and restructuring of a given technology can be seen from a paradigm of mobilities (Urry et al.), which allows us to open our accounts to heterodox approaches in the histories of technologies (postcolonial, collectiveist, feminist, among others). This panel hopes to be a space for dialogue and debate about stories of technological appropriation. We’re looking for comparative works, explicitly global, either on dynamics or extended cases on the cultural processes of a technology in a particular community — e.g., capable Share Studies on the appropriation in multiple locations that represent the different stages of the evolution of a certain technology.

Participants:
The International Politics of Dramatically Dangerous Technologies Ole Waever, University of Copenhagen

The paper outlines a theoretical model to address transformative technologies that increasingly both underpin power among rivaling states and simultaneously constitute collective global dangers — while conversely global security relations mold these technological developments. This triangular dynamic speaks to two core research agendas in international affairs: geopolitical struggles among the great powers and management of planetary threats, like climate change, where humankind interacts with nature as well. These two kinds of global politics condition each other — both ultimately resting on their two-way relationship to technology. This in turn uncovers major influences on emerging technologies. Such inclusion of “global politics” as part of the shaping of technologies was relatively common during the Cold War, where East-West competition was easily included in history of technology. The more complex post-cold war system hampered inclusion in largescale analyses of emerging technologies, but can be overcome by the integrated analysis of dual securitizations of rival powers and global, existential threats. Opening up this research agenda demands a recasting of some existing orthodoxies a) within the International Relations (IR) discipline regarding the relationship between dangers and cooperation; b) by the ways STS and IR have been linked; and c) within STS by re-activating debates from pre-STS philosophy of technology on ‘technological determinism’ and politics of technologies. The paper is mostly theoretical and programmatic, outlining a research agenda but draws illustrations from three cases: artificial intelligence, cyber security and climate technologies. Results from research based on securitization theory is presented to support the case of a possible integrated analysis.

Un caso de transición socio-técnica: la instalación de un régimen de saneamiento en Santiago de Chile, a inicios del siglo XX Miguel Muñoz, Instituto de Estudios Avanzados - Usach

Se presentan resultados preliminares sobre el estudio de la transición socio-técnica a un sistema de saneamiento en Santiago de Chile. Una transición supone la interacción de procesos en distintos niveles: micro, o nicho, meso, o régimen, y macro, o escenario (landscape) (Geels, 2005a, p. 451). En el nivel micro, o “nicho”, aparecen las innovaciones radicales, que son protegidas mientras las condiciones del mercado no les permitan competir; lo constituye una red inestable de actores y reglas. Cuando las redes sociales crecen y se establezcan las reglas en torno a las nuevas tecnologías (Geels y Schot, 2010), el nicho se ha proyectado en un “régimen” socio-técnico. Dichas reglas proveen estabilidad al sistema socio-técnico. El nivel macro o “escenario” se refiere al amplio ambiente que está más allá de la influencia de los actores e influye en el desarrollo socio-técnico, como shocks externos (Van Driel y Schot, 2005). Pero, ¿qué novedades aparecen desde el estudio de casos en que las innovaciones tecnológicas no han sido producidas, sino importadas desde el extranjero? ¿cómo se instala un régimen socio-técnico a partir de tecnologías importadas por un país? Para ello, a través de una indagación histórica apoyada en el análisis documental, se estudia la transición al establecimiento de un régimen de saneamiento en Santiago de Chile, a inicios del siglo XX. Esta supuso la incorporación de tecnologías como inodoros, mingtonitorios y alcantarillados. La relevancia de la presentación se sostiene en que ofrece una discusión sobre la pertinencia del enfoque para el análisis de casos como el estudiado.


This paper aims to examine how maintenance practices contribute in the emergence of new medical spaces — fragile, immanent spaces, molded out of seemingly stable yet uncertain, erratic connections. To do so, I will draw on an ethnographic study of the Pan-African e-Network, or PAN. PAN is a transnational eHealth network connecting health centers located across the African continent with tertiary care hospitals in India. Put simply, PAN aims at caring for patients at a distance. PAN is a private and centralized infrastructure, extending over thirty countries. It was designed to be delivered as a “turnkey solution,” self-sufficient and transposable in potentially precarious conditions. Central to such a standardized solution is the work of a dozen “engineers,” who were dispatched across India and the African continent to ensure proper maintenance and operation of PAN. The infrastructure of PAN is thus sustained by boring, mundane work done behind the scenes. For engineers, things like technical glitches, failures to communicate, wasted time, and routine maintenance are not external to, but rather constitutive of PAN’s network connectivity and indeed of its digital clinic. Engineers execute a range of tasks such as managing bandwidth, transferring data, and perfecting image and sound quality. Engineers manage medical data, and play a key role in patient care. As an engineer located in India liked to remind me while referring to his own sensibility towards careful maintenance: “We are taking care of the world, Mr. Vincent.” In examining practices of maintenance and care, this paper shares new widespread claims about the indeterminacy, radical openness, and vitality of matter and things. In virtue of its design, however,
the challenge is to think vitality with exertion, openness with enclosure, and indeterminacy with the antagonistic forces that effectively constitute PAN’s world. Ultimately, by bringing the maintenance of PAN into the open, this paper aims to give the network back some volume—to bring them back down to Earth, we might say, in all its turbulence, splendor, and inadequacies.

Exporting Engineering for Justice Marie Stettler Kleine, Virginia Tech

In the United States, in the 1960s, issues such as overdevelopment and environmental conservation exemplified the conflict between Cold War Era government spending and small-community engineering priorities. Since these conflicts arose, a small but vocal minority of engineers have acknowledged this tension and addressed the debate directly. Movements such as appropriate technology, humanitarian engineering, value-sensitive design, and engineering for development arose alongside new engineering identities. Ongoing scholarship on these movements (e.g. Niewusma and Riley, 2010) questions what it means for technologists to engage in social justice, and what’s at stake in doing so. In this talk, I track the influence of conceptions of social justice within technological development over the past sixty-five years. I highlight the contradictions between dominant images of engineering and attempts at progressive reform—shedding light on reasons why engineers’ professional identities and social justice movements may be at odds. I then connect these contradictions to my ongoing work, in which I suggest how past and present conceptions of social justice reform may be difficult to export while participating in international engineering-for-development programs. Suggesting that universal human rights, humanitarianism, and needs-based assessment are socially and geographically contingent phenomena, I ask what socially-just engineering looks like abroad and what lessons can be learned from past and present development efforts. I offer potential areas for improvement, showing how these lessons-learned can be reflected in engineering pedagogy and professional identity formation, giving a glimpse of what a more “just” engineering may look like.

Chair: Martin Andrés Perez Comisso, SFIS - Arizona State University

297. Narratives of Science and Scientists: Heroes, Monsters and Victims

Traditional (Closed) Panel

11:00 to 12:30 pm

Sheraton Boston: Floor 3 - Jefferson

From Victor Frankenstein’s hidden laboratory to the modern cloning facilities of Jurassic Park, images of science, technology, and their practitioners have undergone a myriad of changes over the last few centuries. These changes have given birth to popular culture narratives which present an ambivalent picture of scientists: while they are sometimes heroes saving mankind from extinction, they are also frequently portrayed as monsters who terrorize the world through their mad or irresponsible actions. Scientists may even fall victim to their own hubris, unleashing catastrophic events that endanger the future of humankind. Since these narratives reflect social understandings of science and technology, scrutinizing them may allow us to explore how the public thinks and feels about contemporary science and technology and the scientific community. More importantly, these popular images of scientists might give people new ways to understand and appreciate diverse scientific practices and enterprises. Rather than attempting to present a unified vision of what a scientist is, these narratives offer the scientific community and the public opportunities to embrace the diversity and complexity of contemporary scientific and technological practices. This session will investigate the multifaceted impact of science narratives on how the public as well as the scientific community think about science, technology, and scientists. We invite scholars and artists from various disciplines to discuss how different mediums give form to these narratives, and the different ways people use these narratives for conceptualizing science.

Participants:

Frankenstein 200: A transmedia approach to engaging the public in dialogue and activities related to responsible innovation Rae Ostman, Arizona State University

How can we come to terms with the complex social impact of new scientific fields like synthetic biology, robotics, genetics and machine learning? In order to manage these transformative changes, people not only need to understand science and technology, but also to actively participate in shaping a world where our ability to control the building blocks of life and cognition is vastly expanded. Arizona State University’s Frankenstein 200 project uses the interactive, engaging nature of digital narrative and hands-on activities to invite deeper conversations about questions of scientific innovation and responsibility. The project builds on themes of human creativity, societal responsibility, and scientific ethics as first presented in Mary Shelley’s classic novel Frankenstein, which will celebrate its 200th anniversary of publication in January, 2018. This paper presents public learning objectives for this science-in-society project, shares a range of transmedia experiences and strategies under development by the project team, discusses preliminary research and evaluation findings, and considers more broadly the relationship of research and practice in public engagement projects in the sciences and humanities. It is proposed as part of the closed session, “Narratives of Science and Scientists: Heroes, Monsters and Victims.”

A Sustainable Catastrophes Market Forecast Michael Bennett, Arizona State University

Recent spikes in economic nationalism, increased frequencies of spectacular natural and artificial disasters, financially scandalized relief organizations and relief efforts, and complementary philosophical critiques and political scrutiny portend rough times ahead for humanitarian intervention. The collective pressures on globally distributed humanitarian ecologies are leading to experimental innovations among actors in post-disaster theaters, as well as evolutionary developments in the ecologies they partly comprise. This presentation focuses on a development in each category that seems particularly crucial: radically more efficient relief organization formations, and creation of sophisticated market relationships that stabilize catastrophic conditions. In effect, these two developments illustrate the emergence of a partial solution to a predictable failure of the de facto catastrophe market: a shortage of supply of natural disasters. Alongside this descriptive effort, the presentation uses science fictional narratives and criticism to render visible two plausible near-term developments in humanitarian ecology management: rapid growth in domestic NGO post-disaster interventions and development of a synthetic catastrophe market largely modeled on commodities exchanges. Lastly, using a mix of treasonous ANT theory and New Chicago regulatory theory, the presentation speculates on the likely sources of future market failures and the possibilities of effectively governing dynamic humanitarian ecologies.

What can scientists learn from Victor Frankenstein? Peter Nagy, Arizona State University; Ruth Wylie, Arizona State University; Ed Finn, Arizona State University; Joey Eschrich, Arizona State University

Reflecting the dangers of irresponsible science and technology, Frankenstein quickly became a mythic story that still feels fresh and relevant in the twentieth century. In contemporary culture, the Frankenstein myth remains a convenient resource for framing science and scientists in a negative way. We argue that understanding how the Frankenstein myth shapes the way people perceive science is crucial in the effort to understand the sometimes negative reactions towards certain sciences and technologies, particularly biosciences and biotechnologies, and their impact on society and environment. Drawing on the results from interviews with scientists, we argue that Frankenstein may serve as a lens for understanding how people think about science and technology, that in turn could help the scientific community interact with the public as well as communicate about their work more effectively. Since the Frankenstein myth offers a plethora of metaphors for conceptualizing or misunderstanding science,
As scientists should rely on those concepts and use them to build a better relationship with the public. Tainted by the Frankenstein myth, scientists may find it difficult to interact with the public effectively and create a better public image of science. We argue that scientists could make a real progress in making their scientific work more transparent for the public if they embraced, rather than denied the Frankenstein image.

**Participants:**

**Naturalizing Responsibility by Neuroscience: A Coproductionist Analysis**

**Kevin Chien-Chang Wu, National Taiwan University College of Medicine**

As neuroscience and behavioral research evolve, we have observed and experienced an expanding range of discourses on how to make (non)senses in/of them. Although it is hard to differentiate, roughly speaking, “in” is from the perspective of the scientists and technicians about procedures, and “of” from that of the users about products. The open panel calls for STS papers addressing the above issues and, if suitable, with senses of reflexivity. Since the 1980s, there has been an avalanche of static/dynamic neuroimages statistically constructed to explore activities of human brain/mind. It seems that finally we could “see” trans-skull the structure and functioning of brain/mind. These “brain/mind maps” are immutable neuroimages that could be transported, shared and examined by all the stakeholders. Critiques and anti-critiques on their deficits include brain v. mind, inside v. outside, inferential distance/indirectness/circularity, artefactual and arbitrary coding and scaling, overly claiming or seduction, etc. In addition to neuroimages, booming up are neurotechnological practices such as brain computer interface, cyborgs, robotics and even the future virtual version of nano-bio-info-cogno technology convergence. How neural scientists and technologists construct and construe the (non)senses in/of the technologies are also related to the imaginations we use for self/social governance. STS scholars could not avoid the issues of (non)sense-making because we are embedded in these contextual, networked human imaginations as we analyze, critique, and construct relevant discourses. Assembling participating papers with converging and diverging viewpoints, the panel aims at making itself a reflexive testing field of (non)sense-making in/of neural science and technology.

**Revolting Data: A Feminist Technoscience Approach to Making Contemporary Neuro Memento Mori**

**Jane Prophet, Goldsmiths College, University of London**

Psychologists have claimed that finding something revolting, being disgusted is evolutionarily advantageous to humans as it prevents us coming into contact with disease and contaminants (Rozin and Fallon 1987; Curtis et al 2011; Hart 1990; Oaten et al 2009). Humanities scholars have further argued that the basis for disgust is the messiness of the processes that are a necessary part of living and dying, that disgust developed not only as a way to police the boundary between “safe” and “contaminating” states (Miller 1997) but also to prevent moral and ethical decay (Kolanai et al 2004). Some psychological experiments have been interpreted as showing that human disgust is related to our sense of being ‘other’ than animal (Goldenberg et al 2001). Ernest Becker’s suggestion that the human body reminds people of their “animal limitations”, the most basic of which is the inevitability of death (Hecker 1973). Experimental psychologists have tested disgust’s role in human/animal boundary reinforcement to test the hypothesis that “cultures promote norms that help people distinguish themselves from animals” to protect humans from their concerns about mortality (Goldenberg et al 2001). This presentation discusses the author’s memento mori artworks, made from neuroimages produced during experiments designed to analyse brain activity during death meditation and while looking at memento mori. The process of making the works with neuroscientists is situated within an interdisciplinary feminism (Frost 2011). Specifically, new materialism is used to consider revaluation of disgust in relation to memento mori, combining a cultural analysis of disgust and death with scientific insights about the physical and chemical processes of decay. I argue that the life seen in the putrefying and decaying corpse challenges the “historical materialist sense that the agency of
Engaging Material Insensibilities and their Political Effects

This paper examines how cognitive neuroscientists, aiming to understand how human brains process meaning, calibrate sense and non-sense in their experimental designs. In order to study how brains process meaning experimentally, cognitive neuroscientists design experiments that deliver stimuli and then record the brain’s responses to these stimuli. This paper will examine the unacknowledged case of non-meaningful or “pseudo-” stimuli, which are recognizable as belonging to a category, but are empty by design. An example of a pseudo-word is “raglom”. “Raglom” is an “orthographically legal” word (to use their terminology) that does not have any meaning in English. Another well-known example is the Greeble, a stimulus object made to share constraints with faces without matching their explicit features. Such pseudo-meaningful stimuli can act as controls (in contrast to “meaningful” stimuli) and probe the boundary of meaningful and meaninglessness. Pseudo-objects, pseudo-words, pseudo-characters, and pseudo-faces are some of the stimulus objects crafted for psychophysiological experiments about meaning. This paper will consider pseudo-meaningful stimuli ethnographically, by examining the contexts of their production and integration, including the experiments in which they appear, articles describing these studies, and scientists’ informal spoken accounts. I will argue that inside an attempt to build a formal, brain-based material-semiotics, cognitive neuroscientists activate a lay semiotics that functions on a tacit, “know-it-when-I-see-it” basis. This paper adds wrinkles to material-semiotic representation and experimental methods.

Chair: Kevin Chien-Chang Wu, National Taiwan University College of Medicine

299. Engaging Material Insensibilities and their Political Effects II: What Feminist Materialisms Can Contribute

Traditional (Closed) Panel 11:00 to 12:30 pm
Sheraton Boston: Floor 3 - Public Garden

Feminist materialisms provide perspectives to analyze intra-actions of brainbodies, technologies and identity formation, of the enactment of research practices, of cultural meanings and social power relations within the becomings of the so called posthumanist. However, as important as these epistemological perspectives are, they are challenged by the question of their political stance (e.g. Coole 2013). In this paper I take up the question how to grasp the insensible facets of account for materials agency and obstinacy (with Karen Barad’s (2007) ethico-onto-epistemological approach) and Donna Haraway’s (1988) material-discursive nodes to elaborate on the political in phenomena of neurohumanities. The figure of the cerebral subject was made intelligible latest with the Human Brain project around the millennium break and becomes reified with the new U.S. BRAIN Initiative, the EU-based Human Brain Project and the Swiss Blue Brain Project. The explanation and prediction of all processes of human thinking and acting at the time of practicing and measuring goes hand in hand with the notion of modifiability of materiality by social and scientific practice (brain plasticity, neurotechnologies and neuroenhancement). These trajectories are taken to maintain control over the outcomes of all manipulations. Not at least, rationality and consciousness are targeted by the posthumanist party of what should be virtualized for eternity by uploading the mind to silicon: the abled, successful, white, masculinized techno-brainbody. With a politically framed application of feminist materialisms to theses phenomena I characterize the fine grained intra-actions between matter and meanings in cyborgian becomings, cuts out their effects, name the actors, their targets and strategies, and uncover the responsibilities and accountabilities in the scientifico-socio-political discourse. I aim to envision obstinacies that could be realized otherwise into neurohumanities: affect, sociality, contumacies, ageings, dis/abilities, uncontrollable bodily agencies, in short all of this „disturbing“ psychosomatic stuff.

Engaging the Maternal Microbiome as Material and Materializing R Howes-Mischel, James Madison University Increasingly we are asked to conceptualize our body-selves from the inside out and in relation to inhuman others. Centrally, the premise of the microbiome is that it exists—as material and materializing—yet its existence is beyond our bodily perception. We learn instead to cultivate such agentive microbes (central to contemporary health claims) in the transductive effects of emergent research’s movement from academic journals to public media; its claims transformed from promissory to tangible. In this talk I attend to how such claims render the gendered body sensible as such via maternal-fetal-child microbial and material relations. Now the maternal body not only nourishes the growing fetus, its microbiome “seeds” the child’s life course development through intergenerational entanglements. And, in the process, vaginal birth and breastfeeding are transformed from cultural practices to microsociopolitical ones that constitute a kind of matrilinial inheritance. Here, I read across an archive of maternal microbiome materialization to query the sensibility of such insensible microbial agents; how are microbes enrolled to establish intergenerational futures and how do we come to perceive such agentive force as sensible? That is, when and how does this inhuman insensitivity come to materialize in a set of practices for pregnant people? Drawing on a feminist materialisms lens to analyze lab-based research, popular science, and pregnancy narratives about the gendered microbiome, I suggest that the “ethics of apprehension” involved offer us praxis through which to engage the politics and possibilities of such charged and insensible relations.

Institutionalizing Binary Sex: A Feminist Analysis of Two Controversies in the Science of Sex Difference Madeleine Pape, University of Wisconsin-Madison In recent decades, scholars in the field of feminist science studies have contested binary models of sex difference by revealing biological sex to be a dynamic and complex continuum that is inseparable from the workings of gender. However, we know
little about the institutional processes that resist or enable the broader uptake of these complex accounts of sex difference. Indeed despite the scholarly interventions of feminists and the increasing visibility of transgender and intersex rights movements, binary and biology-based models of sex difference continue to be hegemonic within a range of institutional settings and, by implication, popular understandings of the nature of sex itself. In this paper I take up the following question: What are the institutional mechanisms that reproduce particular accounts of the nature of sex in relation to gender? I argue that in order to understand the ascendency of claims that sex is both binary and distinct from gender, we must examine the institutions that shape the production and application of knowledge. Through a textual analysis of policy and decisions that determine research priorities and allocate the resources necessary for knowledge production, I find that binary and biological models of sex persist through institutional processes that (a) legitimize certain knowledge claims over others, in ways that obscure the politics of knowledge and marginalize claims emphasizing complexity and indeterminacy; and (b) push research in particular directions, including through policies and decisions that determine research priorities and allocate the resources necessary for knowledge production. In short, the gendered knowledge politics of institutions provide legitimacy and structural support to research agendas in uneven ways, which are resistant to accounts of sex difference emphasizing complexity and entanglement with gender. The first controversy concerns a 2015 court case in which Indian sprinter, Dutee Chand, appealed the testosterone-based eligibility regulations for female athletes in track-and-field. The second controversy I consider has unfolded in the United States in recent years in response to new guidelines of the National Institutes of Health (NIH), which require researchers to search for sex effects in all basic and preclinical research. Feminist resistance figured centrally in both cases. Taken together, they reveal that the ascendency of biological and binary models of sex depends on processes at the institutional level that support and legitimize the reproduction of particular knowledge forms. In the Chand appeal, the rules and procedures that comprise the institution of law—in this instance as it manifests in sports governance—form a tilted playing field for the recognition of knowledge claims that discredit feminist alternatives. In the case of the NIH, deep and widespread investment in binary and biological models of sex difference, within medicine and parts of the women’s health movement, drives the development of policy and in turn reflected in the knowledge produced and disseminated. I conclude by considering the implications for theorizing more broadly the role of institutional power in maintaining ideologies of essentialized difference.

Sense-abilities of Cognition: A Feminist Materialist Framework for AI

Patricia Treusch, Center for Interdisciplinary Women's and Gender Studies, Technical University Berlin, Germany

Contemporary thinking in Artificial Intelligence pivots around the quest of how to conceptualize cognition differently. Drawing on a shift in modeling AI—from the computer to the body as embodied organism, embedded in an equally lively and complex environment—cognitive scientists have nevertheless continued to argue that this shift has failed to address the underlying dominant scientific framework for explaining mind and cognition (Wheeler 2005). This presentation suggests a “diffractive reading” (Barad 2007) of the embodied and embodied approach to cognition as well as feminist materialist understandings of the interplay between environments and bodies. A point of departure is Andy Clark’s plea for an “ecological sensitivity” (Clark 1997, 141) in grappling with “larger organism-environment dynamics” (ibid., 142). I differ from this with the notion of “response-ability” as a tool of realizing ecological sensitivity: How to rethink cognitive dynamics along response-ability, that is, the ability to respond and to become sensible to and responsible for responses? With this, I aim at challenging the dominant scientific framework of AI across disciplinary boundaries. At stake seems to be, to fully acknowledge the workings of intelligence beyond either humanist imaginaries of an autonomous, rational agency or mechanical imaginaries of the computer in its formalist input-output relations. My presentation provides an outline for a framework of AI that performs ecological sensitivity by tracing organism-environment dynamics of cognition along relations of responsiveness; the latter understood as human and more-than-human in/abilities to become sense- and response-able.

Chair: Dagmar Lorenz-Meyer, Department of Gender Studies, Charles University in Prague

300. Technologies as Rubble? Destabilizing Narratives of Progress II

Traditional (Closed) Panel
11:00 to 12:30 pm
Sheraton Boston: Floor 5 - Riverway

Many imagined that globalization would advance uninterrupted, thanks to new technologies, and would bring capitalist development to billions worldwide. To disrupt such technological determinism and reassess ongoing dynamics of global production/destruction, we propose to examine disused, abandoned, broken or obsolete technologies as “rubble”—as affective objects that continue to influence society and politics after their allure or usefulness has waned. Analytically, this means examining how such objects persist in affecting people differentially across social, geographical and cultural positions (cf. forthcoming issue of the Journal of Political Ecology). We borrow the concept from Gaston Gordillo. In Rubble (2014), Gordillo views the destruction caused by economic globalization not as ahistorical “debris” or ruins celebrated as evidence of progress, but as rubble embedded in cycles of production/destruction revealing how past injustices are lived in the present. For this open panel, we invite contributions that explore technologies as “rubble.” Among other questions, participants might ask such an approach modifies narratives of “failed” or “delayed” development or imaginaries of renewal, invention, and global competitiveness; how to recognize technological rubble, or apply the term to technologies in use; how technologies succumb to political and social change, not just technological advance, yet can continue to have political power in their “afterlife”; how inequalities and injustices become justified within narratives of technical rationality and sophistication; or how seeing technologies as rubble highlights their means of enduring in a given context, a quality sometimes overlooked in analyses of technological circulation across time and place.

Participants:

Society’s Versions in Technical Objects: Genealogy of Sociotechnical Imaginaries in the Chile’s Interconnected Electrical System
Monica Humeres Riquelme
In Chile, in the face of growing social unrest about energy projects—visible in massive social movements and judicialization of electricity generation and transmission projects—several institutions, both governmental and private, have made the diagnosis that “social aspects” have never been considered in the design of the energy infrastructure. Derived from this, in the new Energy Agenda (Energy Ministry’s policy) is pointed out that it is time to involve the society’s vision through participation, in order to return the validity and legitimacy to the state and companies’ actions in this matter. My argument, on the other hand, is to claim that social aspects have always constituted the electric power infrastructure. The problematic issue would rather lie in the specific versions of society that have shaped the arrangements of electric energy, and how the sociotechnical imaginaries of progress have been embodied in it. Therefore, in this paper I analyze genealogically the technical rationales that constituted Chile’s oldest and major big energy infrastructure, the Central Interconnected System. This national project supported on large hydroelectric power plants is a XX century technology that, while prevailing, in some way could be thought as a living rubble, since it is increasingly de-legitimized by Chilean citizens. The research, carried out through the analysis of archival documents, shows how the technologies of knowledge, specifically the use of statistics in political economy, formed an energy system based on the idea of reaching a national standard of living at any cost.

Making Sense of Regional Blocks in Internet Access and Use

Dagmar Lorenz-Meyer
Department of Gender Studies, Technical University Berlin, Germany

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Department of Gender Studies, Technical University Berlin, Germany
Anne Elizabeth Jonas, UC Berkeley School of Information

STS scholars have long recognized that despite fantasies of open flows of information across borders, internet users have radically different experiences around the globe. In comparison to government censorship, however, less attention has been paid towards the role of commercial decision-making in producing a regionally fragmented set of interactions. I discuss how numerous websites for U.S. based companies currently restrict access, and services to users based on their location. This form of “reverse blocking” may arise from discriminatory assumptions that frame all users of a region as potential perpetrators of fraud and abuse, from attempts to circumvent negotiating compliance with legal restrictions through complete denial, or from assumptions about the market demand for products or services in a given location in relation to the expenditures that would be necessary for content delivery and service provision. Users respond to such blockages with a variety of workarounds and alternatives, and express diverse opinions as to the appropriate course of action for companies that currently rely on geo-blocking. This work situates these blocks within a larger context of internet commerce and traces the wide ranging implications of such organizational choices. Through analysis of qualitative interviews with users about their experiences of such blockages, particularly those in targeted regions such as Sub-Saharan Africa, the Middle East, South Asia, and Eastern Europe, and employees at U.S. based companies who implement them, I reflect on how those involved make sense of these methods and the resulting barriers. These findings are part of a larger mixed methods study that seeks to document regional blocks and understand the possibilities they afford and foreclose.

Desire for the Worst: An Ethnography of Nuclear Attachment in Carlsbad, New Mexico

Basak Saraç-Lesavre, Virginia Tech

In the city of Carlsbad in New Mexico, where a deep geological repository named the Waste Isolation Pilot Plant (WIPP) receives regular shipments of defense transuranic waste that will remain radioactive for 10,000 years, a group of local actors put major efforts to make their city receive new nuclear waste projects. In January 2012, Forbes Magazine named the town of Carlsbad “The Town that Wants America’s Worst Atomic Waste” (Forbes, 2012). Obviously, linking the verb “want” with “worst” is meant to show how unexpected this desire might be. Yet, according to Beck in a striking contrast with the undesirability of their environmental and health effects, risks of modernization might find their place at the heart of capital development reasoning (2001). This paper empirically relies on a fieldwork trip that took place in Spring 2012. It offers an ethnographical account of activities undertaken by a Nuclear Task Force in Carlsbad. It argues that “desire” for nuclear waste entails a complex valuation process (Fourcade, 2011; Muniesa, 2014), implying a peculiar activity around a notion of “national interest” situated at an interesting tension between neoliberal and pastoral ideas of responsibility (Foucault, 2007; Hache, 2007; Fridman 2010; Brady, 2014). Second, taking their activities seriously, the paper proposes unfolding what constitutes a contemporary “desirable community”, situated at the heart of the U.S. nuclear complex (Masco, 2006).

Chair:
Tristan Partridge, UCSB, Anthropology

Discussant:
Javiera Barandiaran, University of California, Santa Barbara

301. Metrics: Creating by Measuring

Traditional (Closed) Panel

Sheraton Boston: Floor 5 - The Fens

Participants:
Technology, Expertise, and the Determination of Sexuality in Two Areas of Law

Stefan Vogler, Northwestern University

How does one objectively measure something as subjective as sexuality? Though this may seem like a rather abstract question, it takes on immediate importance in legal settings every day. For instance, to receive asylum sexual minorities people fleeing persecution on account of their sexuality must prove that they are a sexual minority. By contrast, U.S. sex offender law requires that many offenders undergo a series of psycho-sexual evaluations to prove their sexual preferences and predict their likelihood of committing future sexual violence. This paper uses legal decisions, interviews with legal and scientific actors, and multi-sited ethnographic observation to examine how adjudicators “know” individuals’ sexualities in these two settings. Legal officials in each domain draw on different forms of expertise and technologies to “materialize” sexuality. This paper argues that these two legal arenas enact divergent sexual ontologies that are a result of the competing forms of expertise and technology on which each area of law draws. Whereas asylum hearings rely primarily on anthropological expertise and narrative technologies to determine subjects’ sexualities, sex offender civil commitment determinations depend on forensic psychological expertise and technologies meant to read the body. The result is a more fluid and capacious understanding of sexuality in asylum law and a more essentialist, bodily conception of sexuality in sex offender law. Rather than adjudicating between these two methods, this paper suggests that these competing ontologies are equally real in their respective settings and uses this comparison to point to the disunity and local specificity of legal epistemologies.

A Survey Instrument for Measuring Trust in Scientists

Dilshani Sarathchandra, University of Idaho

Accurately measuring “trust in scientists” is important, especially under current conditions where misinformation seems to be increasing public anxiety about scientific and technological developments. This research introduces a new survey-based instrument for measuring trust, and reports results of two pilot studies demonstrating the reliability and validity of this instrument. High Cronbach´s alpha value for the overall scale indicates the instrument’s reliability, and the consistent performance of the scale as a predictor of ‘climate change skepticism’, and a stronger positive effect on vaccine acceptance among conservative than among liberals, signaling a potentially promising tool to reduce political polarization of important scientific concerns such as prophylactic behavior and pro-environmental attitudes.

Developing Food-Energy-Water Nexus Indicators as a Complex Data Assemblage: A case study of Metro Denver

Sonia Ahamed, University of Vermont; Joshua Sperling, National Renewable Energy Laboratory; Jennie Stephens, University of Vermont

Exploration of the food-energy-water (FEW) nexus is intended to illuminate the hidden interactions and unintended consequences that can occur when FEW systems are envisioned, planned, and managed independently of each other. Lack of data on FEW interactions is widely seen as one of the major roadblocks to adequate understanding, effective governance, and sustainable management of entangled, multi-level FEW systems. It has been argued that if FEW interdependencies could be quantified, measured, and monitored (preferably in real time), then the associated infrastructural, policy, development, and consumer tradeoffs would be more readily understood. This in turn would render FEW ‘system of systems’ behavior more predictable and, presumably, controllable. While it is true that gaps in the FEW data landscape can (and do) hinder sustainability efforts, we suggest that any attempt to identify and fill these gaps should recognize that indicators are themselves “complex, politically-infused, sociotechnical systems that, rather than reflecting cities, actively frame and produce them” (Kitchin et al. 2015). Using
Making Sense of Health Care Quality: A Methodological Approach

Sarah L. Goff, UMASS-Amherst

302. SSS Editorial Board Meeting
Business Meeting
12:30 to 2:00 pm
Sheraton Boston: Olmstead

303. Math, Law, and Civil Rights: Interdisciplinary Interventions in Gerrymandering
Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Beacon A
Presenter:
Moon Duchin, University Of California At Davis

304. Doing Science through Feminist Speculative Fiction Writing
Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Beacon D
In a recent interview published in Sucker magazine, Walidha Imarisha characterized Black Lives Matter as “visionary” and also as “science fiction.” Here, science fiction is not merely entertainment or escapism, but rather an activist praxis in which Imarisha and other BLM activists pledge to “live this science fiction dream as if it was reality, until it becomes reality.” What would it mean to employ such a practice within efforts to decolonize science making? The leaders of this interactive workshop will speak to these efforts as part of a new multi-campus queer, race-conscious feminist formation, a Feminist Arts & Science Shop, and then lead participants in a creative feminist science fiction writing workshop. We will ask how might feminist science fiction provide alternative understandings of our bodies, environments, and social and political formations (e.g. sexual violence, global public health, racialization, addiction, medicine, disability, universal sustainable design) to point towards new ways to address social injustice.

Presenters:
Xan Chacko, University of California, Davis
Sarah Giordano, San Diego State University
Rana Jaleel, University of California-Davis
Sarah Rebolloso McCullough, University of California San Diego
Jasmine Wade, UC Davis

305. Ingesting the Informational Imaginary
Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Beacon E
This 60-minute lunchtime workshop convenes an interdisciplinary group of STS scholars, artists, and scientists, each offering ingestible research presentations. With sensorial devices including tastes, sounds, and images, we will explore techno-cultural infrastructures—such as engineering, data management, and environmental stewardship—that inform our imaginary of the everyday. Through an associative tasting menu of water, pears, and foraged foods, we explore topics ranging from industrial agriculture to water filtration to variable definitions of locality. Each ingestible experience invites participants to question the relationship between tasting and knowledge; to ask how one knows what they ingest. Neither a meal, nor a demo per se, this workshop attends to the bodily aesthetics of knowledge circulation, showing how studies of science and art can surface information through sensorial demonstrations. Limited enrollment — registration will open on July 25 at http://tinyurl.com/y9bsqszz This program is preceded by the off-site event “Eating Humans: Eating Into Future Cosmologies” by the spurse collective, where locally-foraged ingestibles will be collected.

Presenters:
Kritika Ramchander, MIT
Elizabeth Hoover, Brown University
Iain Kerr, spurse
Petia Morozov, spurse
Matthew Friday, spurse
Ethnographers’ Lunch
Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Beacon F
Ethnography has long linked STS scholarship to other disciplines, involving STS with questions of method from fields like Anthropology and Sociology. This session provides a space for ethnographers working across disciplines to meet and informally discuss conceptual and methodological challenges. Bring your lunch and talk shop with fellow ethnographers, or come to learn more about what ethnographic STS looks like in practice today. Sponsored by the American Anthropological Association’s Committee for the Anthropology of Science, Technology, and Computing (www.CASTAC.org).
Presenter:
Nick Seaver, Tufts University

Decolonizing STS Meet-up
Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Beacon G
Towards building a network of scholars -- committed to bringing together indigenous and social justice approaches with race and ethnicity studies -- for discussion and programming.

Ethnografilm Dalies III
Lunchtime Workshop
12:45 to 1:45 pm
Sheraton Boston: Floor 3 - Commonwealth
What better way to spend lunch than in a dark room watching ethnographic films? Our "ethno-lunch" began in Barcelona, where several dozen people gathered each day after the morning sessions to relax, eat their lunch, and view a selection of short films selected to represent the "best of" the films screened at Ethnografilm Paris during the April 2016 festival. We continue the tradition with an entirely new selection of films from the 2017 festival.

Tensions and Challenges for Environmental Citizen Science 1: Scientization of Activism
Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon A
Citizen science is at the heart of many of today’s environmental controversies. Natural scientists have also shown tremendous interest in using citizens to generate data, and many people are excited about participating in gamified, crowd-sourced, big data collection. STS scholarship has typically applauded these efforts because they make science more participatory, providing an example of the democratisation of science, or, at least, more equitable engagement between experts and the lay public. However, citizen science may or may not produce knowledge that is useful to environmental activists. Additionally, the degree to which citizen science can help communities to address social inequality, rectify environmental injustice, and produce accountability of government and corporate entities varies depending on broader political and social contexts. This panel seeks presentations from scholars who critically examine how citizen science enhances struggles for social change beyond merely generating data through volunteer participation. We are particularly interested in projects that situate dilemmas and tensions in citizen science in the broader context of colonialism, neoliberalization, globalization, and scientization. For example, citizen science can inadvertently facilitate neoliberal budget cuts in environmental monitoring, further reducing government capacity. Likewise, citizen science can accelerate the “scientization” of environmental issues, reducing complex social and ethical challenges to technical matters.

Participants:
Strongly Participatory Science and Collaborative Analysis: Circumventing the “Scientization” Problem Barbara Allen, Virginia Tech’s National Capital Region Campus
Citizen science encompasses a broad array of practices in the environmental justice arena, however, in its strongest manifestation it can include local residents: 1) asking questions that drive the scientific process; 2) influencing the kinds of methods used, and 3) participating in data collection. However, data does not “speak” for communities nor does data “represent” residents, an assumption in the scientization of policy. Collaborative analysis, the last phase citizen science is often missed—to the detriment of the robustness and relevance of the science itself. Analyzing data with local communities in focus groups or small structured meetings can empower residents as key collaborators in making meaning from abstract sets of numbers. Lived context can enhance data by making sense out of data, especially data that may have seemed complex, contradictory or irrelevant. Additionally, through engaging with the data analysis process, citizens gain confident ownership of the science they helped create and thus feel more at ease speaking authoritatively about it. In my current case study near Marseille, France fully collaborative science–making has led to local residents and their elected officials more assertively using their data to influence better environmental outcomes—often outcomes “brainstormed” by the community as part of the collaborative analysis process. Thus scientization (policy driven by institutional/corporate data) is circumvented: a more robust, socially-situated, ethically-infused and community-analyzed science can be used to drive policy.

Citizen Science and Food Justice Abby Kinchy, Rensselaer Polytechnic Institute; Daniel Seel, Rensselaer Polytechnic Institute
STS research on citizen science has typically emphasized the virtues of participation in research or asked how expanded participation changes science–transforming practices and knowledge. Some scholars, however, have begun to ask about the effects of citizen science on citizenship–engagement in political or civic life. In this presentation, we build on the latter perspective by asking how citizen science dealing with the agri-food system contributes to or enhances struggles for food justice, the idea that “the benefits and risks of how food is grown and processed, transported, distributed, and consumed [should be] shared equitably” (Gottlieb and Joshi 2010). Our approach is to analyze and compare ten case studies from the academic and gray literature about participatory agri-food systems research. Participatory agri-food research takes many forms, including pesticide drift monitoring, food contamination testing, community food assessments, farmer-led compost experiments, and more. Some participatory agri-food studies are explicitly informed by a commitment to food justice. In such projects, the aims of citizen science go beyond encouraging lay participation in research; the goal is to strengthen struggles for social change. For example, the results of citizen science may be used in advocacy for farm worker rights or to combat child malnutrition. Other citizen science projects dealing with food and agriculture have more conventional research and education goals, such as tracking bee populations or demonstrating the contributions of community gardens to local diets. However, these too may generate justice-oriented social change. By comparing an array of examples of participatory agri-food system research, we aim to draw lessons that are relevant to other kinds of environmental citizen science.

Citizen Sensing; From Technology to Activism Ehsan Sabaghiian, School of Information Studies, Syracuse University; Sikana Tanupabrungsun, School of Information Studies, Syracuse University; Murali Venkatesh, School Of Information Studies, Syracuse University; Manali Paresh Shiurkar, School of Information Studies, Syracuse University; Harsh Manoj Avlani, School of Information Studies, Syracuse University
Citizen monitoring of air pollution using low-cost sensors is a global phenomenon, with active groups in Barcelona, London, Amsterdam, among others, and in several states in the United States. These projects often explicitly seek to connect data and collective action by citizens on local environmental policies. However, is this linkage actually playing out in citizen science?
practices? Are citizen sensors, in fact, using sensor data to fight for policy change? Our findings from the empirical analysis are decidedly pessimistic. We looked at an extensive data-set of longitudinal online forum data from two global projects, supplemented with interviews and surveys of citizen sensing project principals, forum moderators, and citizen users, and employed automated analysis and graphing tools. Two findings are emerging, and both are sobering: first, while big data from the sensors have an indescribable weightiness as an empirical "object" (following Heidegger, Ingold, Latour) set "over against" the material world, the status of this data as a "thing", as a leaky armature for instigating collective action in the social world is yet to emerge. Second, modeling the topics of users' online posts and their evolution over time overwhelmingly suggests "objectification" of sensor data, and of "pollution" itself, as indexed by the homogenous and scientized discursive categories addressed in the posts. Furthermore, analysis of forum threads suggests that objectification may produce highly centralized social network patterns marked by strictly instrumental many-to-one exchanges between users and developers. Our findings highlight the challenges facing data-driven citizen science projects, in contrast to projects where pollution is a clear and present problem, purporting to mobilize activism for clean air.

Contesting Risk, Environmental Justice, and Knowledge on Radford Arsenal's Fenceline Gregory D Nelson, Northern Arizona University

This paper examines the contestations over the politics of knowledge, expertise, risk, and environmental justice on Radford Arsenal's fenceline. The Radford Army Ammunition Plant (RAAP) is North America’s only supplier of nitrocellulose, a base ingredient in most munitions deployed by the United States' (RAAP) is North America’s only supplier of nitrocellulose, a base ingredient in most munitions deployed by the United States' armed forces. The production of propellants produces waste. At Radford Arsenal, some of this waste is doused with diesel fuel and open burned in pits during which toxic products of incomplete combustion drift over the surrounding community. As a fenceline resident, I reveal how a fenceline standpoint contributes to developing a stronger objectivity of the risk contestations from open burning hazardous waste at RAAP. This scholar-activist research examines the contestations of risk at one of the most hazardous waste facilities in the nation according to the EPA’s Risk Screening Environmental Indicators index. Mobilizing the fenceline standpoint to study risk strengthens our objective understanding of the social situatedness of risk. By analyzing the construction of risk from the open burning of hazardous waste from a fenceline standpoint I draw on lived experience within the fallout zone. I discursively situate the controversy over fenceline community risk from open burning by showing the inadequacies of official risk assessments pointing to the important contributions of fenceline experts. I present an argument for how a fenceline standpoint can challenge regulatory and producer expert constructions of fenceline risk. The creation of a program of research: Critical Risk Analysis, offers a model for scholar-activist intervention on the fenceline. Through this sort of "holistic" surveillance may correct for the "bias" in police reports, it does not so by mobilizing the racial capitalist (Robinson 1983) infrastructure of American political economy. This paper will explore how companies like Azavea, the makers of HunchLab, digitally "zero out" the entanglements between race, carcerality, and capital. I will ask why it is "common sense" to think that criminalizing the educational and gastronomic characteristics of a settled community is ameliorative, rather than constitutive, of population racism. I will argue that one cannot "code out" race from American policing technologies, because race is an originary policing technology, and policing is a bedrock racializing technology.

Deception by Design: Carceral Lures and Interventions into Child Sexual Exploitation Mitali Thakor

In this talk I consider how anti-trafficking has emerged as a global network of humanitarian professionals, law enforcement, and software companies collaborating to address the issue of child exploitation and trafficking online. I argue that the anti-trafficking network consolidates expertise through a shared moralizing politics of bureaucracy and carceral sensibility of securitization. This network mobilizes the issue of child protection to expand the reach of technologies of search and prediction, and to afford legitimation to a newly normalized level of digital surveillance. To make this argument, I present the case study of "Project Sweetie," a two-part sting operation in 2013 and 2016 conducted by a Dutch NGO using a photo-realistic moving avatar of a Filipina girl posing on webcam chat rooms and automated as a bot to conduct conversations with solicitors. Based on ethnographic fieldwork with the NGO and creative team behind Project Sweetie, as well as officers from the Dutch national Police, I describe how perceptions of digital risk and racial desire inform the production of such child protection campaigns. I argue that the deceptive interface of ‘Sweetie’—not quite child, not quite artificial—exemplifies the role of digital racial matter in the design of entrapment lures. In this case, the
virtual, racialized child serves as a portent of new forms of ‘proactive’ policing, wherein child protectionism comes to justify surveillance work that both expands beyond and serves the carceral state.

Shadows of War, Traces of Risk: Preemptive Policing and the Production of Carceral Space in Atlanta, GA. Andrea Miller, UC Davis

In the summer of 2016, Stone Mountain Park outside of Atlanta, most notable for its 1.57-acre carving of Confederate generals and as the site of the Ku Klux Klan’s 1915 rebirth and present-day rallying point, unveiled the new theme of its nightly lasershow: “Lasershoe Drone Wars: The Mountain Awakens.” Interestingly, this strange gesture to the zeitgeist of unmanned aerial systems (UAS) featured not a single drone. Rather, a brief segment of the lasershow was devoted to a confusing and poorly narrativized version of Star Wars, projecting spacecraft at war across the mountain’s Confederate carving, bookended by visual appeals to post-9/11 nationalism and Dixieland nostalgia. Why reference drones at all then? This paper will take up the curious absence of the drone in the park’s lasershow as a point of departure to consider wide-scale UAS development in Atlanta as the backdrop to localized preemptive spatial policing and surveillance practices in the city’s historically Black Edgewood neighborhood. Specifically, I will focus on Edgewood Court Apartments, one of Atlanta’s last and most contentious project-based Section 8 complexes in one of the city’s most rapidly gentrifying neighborhoods. Simultaneously identified as a source of blight and crime and as a site of future value, Edgewood Court allows us to ask how these preemptive and algorithmic logics most often associated with military drone policing are articulated and expanded through the confluence of local policing and surveillance practices, financialized risk assessment, and speculative development and infrastructure projects to produce spaces of environmental carcerality and racialized criminogenic potential.

Anti-Racist Technoscience: A Generative Tradition Ron Eglash, Rpi

In his 1854 address, abolitionist Frederick Douglass described the collusion between pro-slavery political forces and polygenist biology, which maintained that there were different origins for each “race” of humans: “The debates in Congress on the Nebraska Bill during the past winter, will show how slaveholders have availed themselves of this doctrine in support of slaveholding. There is no doubt that Messrs. Nott, Glidden, Morton, Smith and Agassiz were duly consulted by our slavery propagating statesmen.” The alternative biology envisioned by Douglass was one that coupled common descent—the monogenetic origins of the one human race—and physiological plasticity. He did not get all the details right, but his general theory linking the self-generating diversity of biology with the self-emancipating politics of abolition were foundational to the generative tradition I will map out in this talk. Douglass’s influence on Henry I. Bowditch created an abolitionist foothold in the medical community; inspiring not only Franz Boas’ anti-racist work on immigrant physiology, but also Walter Cannon’s work on homeostasis, which linked social justice with general systems theory and early cybernetics. Contemporary versions of these movements, such as complexity theory in the sciences and Black Lives Matter in politics, have lost much of this connection. Generative justice offers a platform for this synthesis based on bottom-up circulation of unalienated value throughout the technosocial ecology. By recovering the generative intellectual tradition from abolitionist history, we can revitalize the collaborative possibilities for STEM education, scientific practice and communitarian economies.

Chair: Ruha Benjamin, Princeton University
Discussant: Ruha Benjamin, Princeton University

311. Can the Subaltern Speak? II

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon D

This panel questions research on ‘the subaltern’ by focusing on processes whereby established theories can reinscribe acts of domination and erasure of options, in a variation on Spivak’s query, “Can the Subaltern Speak?” (1988) We point out three possible entry points: 1) The subaltern researcher. Xavier Polanco (1985) used the expression “domestic brain drain” to identify “a cognitive position assumed by Third World and Latin American scientists, who without emigrating from their countries guide their scientific work in terms of research fronts, reward systems and publication of developed countries.” The ambivalences between simultaneously copying and rejecting the models of European civilization often lead subaltern colonized-colonizers who are approaching modernity to a hindrance. 2) Dialogue with the subaltern. A second entry point comes at the intersection of two seemingly accepted claims within the STS community: “science is capable of dialogue only on its own terms,” and “a respectful enough story is all one needs to go to trial with.” The first will require that subaltern claims to knowledge be expressed and subjected to evaluation following scientific practices. On the second, “respectful enough” means producing a set of inscriptions which, by means of their juxtaposition, stabilize the story as an entity that, as something formed by a detachment from of the flux of (an ever moving) reality. 3) Conflicts and limits of authority. A third entry point would be any situation where there is a conflict between the authority of scientific knowledge or fact and the authority of a local popular non-expert knowledge that scientists classify as “mere belief.” On the one hand, the (colonizer) scientist, engineer or project manager is clearly privileged in determining the scientific or technological reality of what is at stake. On the other hand, subalterns may resist and evade the definition of their reality by others in numerous and sometimes quite effective ways. The panel thus welcomes any research that investigates the stakes and dynamics in such encounters between expert and subaltern knowledges and realities.

Participants:

Research Excellence in Africa: Policies, Perceptions and Performance Erika Kraemer-Mbula; Robert J W Dr Tijssen, Cwts Univ Of Leiden

Research excellence (RE) has become a fashionable policy-relevant concept in the world of science funding and assessment. Globally, and in the African continent, there has been increasing interest in research excellence, geared towards creating an enabling environment to groom and attract high-quality researchers. Top performers are strategically identified by public sector agencies and funding organizations. The meaning of research excellence and its implementation in practice is influenced by political considerations as well as social, cultural and organisational environments in which researchers function. Scientific performance is of course also affected by economic conditions and the availability of human resources. With demands increasing for stakeholders to make the best use of available resources, thus driving pleas for more selectivity in resource allocation and transparency in decision-making processes, the need for defining, identifying and operationalising research excellence is becoming increasingly urgent for all stakeholders concerned. Our paper discusses various features of research excellence within Africa, framed within the context of government research initiatives, science granting councils and other public sector funding agencies. Our survey, collecting responses from 106 researchers and research coordinators throughout sub-Saharan Africa, highlights the diversity of opinions and preferences with regards to Africa-relevant dimensions of research excellence and related performance indicators. The results of the survey confirm that research excellence is a multidimensional concept that ought to be contextualised in order to be responsive and useful to beneficiary communities. Our analysis shows how some of those dimensions can be operationalised into quantifiable indicators at may suit evidence-based policy discourses on research quality in Africa, as well as research performance assessments by research funding agencies. Our case study on top 1% most highly cited research publications identifies several niches of international-level
research excellence in the African continent, while highlighting the role of (inter)national cooperation. To gain a better insight and deeper understanding of indigenous determinants and local driving forces, it is important to discuss the complementarities and tensions emerging from a distinction between excellence in the context of Africa and ‘global excellence’. Our paper presents concrete suggestions on how to operationalise, measure and assess research excellence within African science.

"Almost White, Almost Black" in Brazilian Academic Research

Márcia Regina Barros da Silva, Universidade de São Paulo - USP

Can the subaltern research? In Brazilian universities, the relations of subalternity exist among the very Brazilians. Subalternity can be expressed in different ways. Here I intend to refer to the dominant positions in the academic hierarchy. Even if one knows that ethnic-racial definitions and indicators are a field of great complexity and conceptual instability, it is easy to verify that the Brazilian academic world is predominantly "white". It is possible to be amazed at such dominance being very little discussed even within the academic space itself - a fact that has already been called the 'racial confinement' of the Brazilian academy. Could the academic control over peers carried out by the networks of scientific functioning also explain control over the "whiteness" of Brazilian faculty members? The quota system adopted to alter the access of undergraduates to higher education, adopted by the Brazilian State since Law no. 12,711 in 2012, was not directed to the faculty staff. (Carvalho 2006) claims that a maximum of 1% of the Brazilian academic professionals are black, although he admits that the data are only estimate since there is no systematic racial survey over the academic universe. I point to what might be called 'almost white, almost black' in this universe. What category is 'almost white, almost black' and what implications does it bring to the European parameters of the functioning of sciences in the Brazilian academic subalternity? Nowadays Brazil is in turmoil. I present my own mixed extraction, in order to discuss my university insertion and try to hear how the 'almost white, almost black' speak in the Brazilian academy.

Can the Subaltern Propose a New Subject? The Ibero-American Networks on Psy and STS Studies

Arthur Arruda Leal Ferreira, Federal University of Rio de Janeiro (UFRJ); Jimena Carrasco

We try to answer the open panel question through a new rephrased question: Can the Subaltern Propose a New Subject? Of course the discipline of this supposed new area (Psy Practices and STS Studies), the concepts generally used, the main authors took as references, the most part of methodological strategies, the crucial problems suggested, all of these elements can be recognized as proposed and forged in the so-called Academic first-world (in some specific centers from West-Europe, Anglo-Oceania and North-North America). To legitimize this above-mentioned area we could ask for a genealogical effort (in the more traditional sense), trying to recognize the good ascendance of all of these terms, linking all of them to a respectable Academic first-world origin. But the genealogy that we will invoke is more linked to the nietzchean and foucauldian perspective where the production of knowledge are entirely mixed with power relations, body affections and agonistic process to combine and discipline heterogenetic and local components. More directly, we will use Oswald de Andrade concept of Anthropophagy to understand the agonistic process of knowledge production and circulation. In this sense, the question of origin is minor considering the strategies of appropriation and combination between different elements (We want what is not ours – Anthropophagical Manifesto). Taking in account all of these previous points, we will make a brief effort to produce a cartography of some networks from Psy Practices and STS Studies, considering it as an emergent domain that arise specially (but not exclusively) in Iberian and Latin American centers. This cartography will present many problems of definition as: 1) How to consider STS studies and Psy area in a plural and symmetrical form? 2) How to define the Latin American and Iberian limits (or even its supposed unity)? 3) How to find some networks operating in this supposed new area? For this, we will follow some groups present in meetings and publications trying to observe how they assimilate and propose in their own terms some questions, concepts, practices and methodological strategies.

The Mapping of Grief in Peixinhos: Combining Story Telling and Geo-Processing Techniques to Confront Official Maps of Violence

Catarina Morawska Viana, Federal University of São Carlos (UFSCar)

Geo-processing techniques have long been used for drawing social and environmental diagrams upon which development policies are based. In Brazil, such techniques have been instrumental for indigenous and environmentalist organizations in demanding the safeguard of legally-protected areas and indigenous lands. As for the drawing of social diagnoses in poverty-struck areas, the use of geo-processing has been more common on the part of government organisations and expert research institutes, which eventually make use of participatory tools in the effort of engaging the perspective of target groups. Less frequent, however, is the use of geo-processing techniques by subaltern groups themselves as a means of making their demands visible to the State, that is, in the role of actors in the midst of their political struggle rather than “beneficiaries” as defined in a development project. One such experience has been the Mães da Saudade Project, a community-based research designed and undertaken by young people in the neighbourhood of Peixinhos, in the Northeast-town of Olinda, that aimed at collecting from mourning mothers of the community the life stories of their murdered children so as to create a map of grief. This paper explores some of the discussions that emerged in the process: how is it possible to combine local practices of story telling with geo-processing techniques and produce alternative accounts of the neighbourhood that might help design preventive security policies rather than repressive policies based on maps of violence? What role could affect and memory play at revealing and dislocating the different ideas of time and space at stake in the collaboration between anthropologists, geographers, young people and grieving mothers?

Chair:
Anita Chan, U. of Illinois, Urbana-Champaign, ICR


Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Beacon E

How do you make nothing? Brian Rappert and Wenda Bauchspies (2014) suggest that the “potential of what isn’t” not only signals lack, it can alert us to a misplaced presence, foster an appreciation of presence, or even be a presence. A range of scholarship has worked to reveal, unveil, or make present that which is normally unseen, yet the actual making of absence, and its affects and effects, remains under-examined. Many institutions routinely practice erasure: courts erase debts through bankruptcy; websites disappear; engineering firms design to remove noise from buildings and vehicles; food scientists mask off flavors in foods or medicines; environmental crews “clean up” toxic spills; corporations swallow each other, then let entire arms of production “die” out. These erasures are rarely complete; traces obdurately remain of the someones, and somewheres that make nothing. What types and forms of labor – visible or otherwise – go into the making of nothing? What infrastructures are put into place to enable the making, and circulation, of these nothings? How are meanings emptied out of objects, places, services, and peoples to facilitate global flows (Ritzer 2007)? How does the making of nothing shape aesthetic choices, daily environments, and behaviors (Bourdieu 1979)? Finally, what “hauntings” (Gordon 2008) do these institutional practices of erasure impose on bodies and communities? This open panel invites abstract submissions that explore the techniques, negotiations, practices, and consequences of making nothing as well as practices of mobilization and circulation inherent to these processes of making nothing.

Participants:
Disappearing Disaster Debris in the North Pacific Kim De Wolff, University of California, Merced

On March 11, 2011 over twenty million tons of debris washed out to sea with the tsunami from the Japan triple disaster. Six years later, the National Oceanic and Atmospheric Administration (NOAA) reports that only “several” items of confirmed tsunami debris have been spotted at sea or found washed ashore in North America and the Hawaiian islands. Where did all the materials go? This paper draws on ethnographic research and interviews conducted with nonprofits, scientists and policy-makers on both sides of the North Pacific. It offers an empirical case of the processes of material disappearance to the growing STS literature on absences, invisibility and making nothing. I show how debris caught up in relationships of ownership and loss becomes – and is made — indistinguishable from waste already circulating at sea. I argue that institutional practices of accounting and appeals to uncertainty work to empty disaster debris of meaning so that the materials can be ignored, cleaned-up or used for science as usual. Still, as potential traces of the disaster continue to resurface, tsunami debris and its absence continue to shape human relationships with and across the Pacific Ocean.

Cultural Productions of Absence: American Football and Concussion Non-Disclosure Jennifer Croissant, University Of Arizona

Unfolding appeals, countersuits, and conflict between the U.S. National Football League, its players, and insurers leads to a complex landscape of agnoses and absent knowledge. This paper traces, via examination of documents and media, the intentional agnoses produced by non-disclosures operating at several levels of analysis: interpersonal, organizational, across organizational fields, and cultural. The focus will be on how cultural domains of masculinities inflect agnosis production. The agnoses will be analyzed and their interlocking will be contextualized and analyzed as intersecting domains of non-knowledge. This paper will advance conversations about the legacy term ‘symmetry’ as a methodological and epistemological precept in science studies.

Unmaking Gustatory Erasure in Bottled Water Production Christy Spackman, Harvey Mudd College

Bottled water is hot, marketers note, confident that designer waters, with their perfectly curated pH and mineral level profiles, have moved beyond the ecological crisis-of-confidence of the late ’90s and early 2000s. A range of scholars have explored waters’ makeup (Hamlin 2000), meanings (Hawkins, Potter and Race 2015), circulations (Pritchard 2011), and Physical and social infrastructures (Anand 2017). Yet the technological and sensorial work of making water calls for another look, given the sensorial work of making water calls for another look, given the

Unintended appeals, countersuits, and conflict between the U.S. National Football League, its players, and insurers leads to a complex landscape of agnoses and absent knowledge. This paper traces, via examination of documents and media, the intentional agnoses produced by non-disclosures operating at several levels of analysis: interpersonal, organizational, across organizational fields, and cultural. The focus will be on how cultural domains of masculinities inflect agnosis production. The agnoses will be analyzed and their interlocking will be contextualized and analyzed as intersecting domains of non-knowledge. This paper will advance conversations about the legacy term ‘symmetry’ as a methodological and epistemological precept in science studies.


As a mathematical concept, a “manifold” designates a topological space or surface that is globally abstract with increasing n-dimension. A manifold is also locally Euclidean, comprising of points that lie in a neighborhood resembling flat space. Various techniques and materials have been used throughout the twentieth century to instantiate manifolds in mathematics and design (e.g. as symbolic expressions, line sketches, paper folds, and wire sculptures). This talk examines how mathematicians and artists in mid-twentieth-century America have tackled back and forth between thinking of manifolds, on one hand, as local-global properties defined by mathematical formalism, and on the other hand, as distinctive
signatures of cultural discourses both particular and universal. I argue that the generalized and formalized conception of a manifold not only derived from early twentieth-century "modernist" transformations in mathematics, but also from the retention of racial and cultural identities associated with techniques for presenting it. Drawing on A.N. Whitehead’s notion of “prehension,” I gesture towards a theory of translation among disciplinary modes of practice and knowledge. To this end, I turn to archival material and mathematicians’ efforts to interpret the “Orient” and associate Eastern modes of craft and design with international modernism and mathematical practice. The historical trajectory of “mathematical modernism,” then, no longer appears exclusively aligned with Euro-American modernisms, but also convergent with transpacific discourse.

Plexes and Patches: Ambivalent Artifacts of Computer-Aided Design

Daniel Cardoso Llach, Carnegie Mellon University

Computation offers what we might term a procedural ontology to a range of disciplines from mathematics, where it originated, to other scientific and artistic fields where it has been ambivalently used both because of its associations to concrete technologies and as an epistemic template channeling generative, descriptive or analytical aspirations. Tracing early disclosures of this productive ambivalence, this paper will reflect on two artifacts from the history of Computer-Aided Design. The first is the “Plex,” a theoretical construct developed at the Servomechanisms Laboratory at MIT by mathematician Douglas Ross in the 1950s, which helped steer early software projects and foreshadowed object-oriented programming (OOP). Described as “an interwoven [sic] combination of parts in a structure” a Plex represented a thing “be it concrete or abstract, physical or conceptual.” The second is the “Coons patch,” the earliest mathematical technique for the calculation and display of curved surfaces on a computer created by Steve Coons, which demonstrated the formal possibilities of linking Computer-Aided Design and numerically controlled machinery, and was crucial to attract a generation of researchers on both sides of the Atlantic to problems of computational design and geometry. Challenging abstract-concrete binaries, I will discuss these artifacts’ realization through a plurality of discursive and material practices involving diagrams, numerically-produced objects and geometries, writing and (crucially) software, suggesting their ambivalence as both operative artifacts and symbolic notations is a distinctive feature of computational objects.

Midcentury Mathematics and Aesthetic Autonomy

Alma Steingart, Harvard University

In “Mathematics in the History of Thought” (1925), Whitehead claims that “Mathematics is thought moving in the sphere of complete abstraction from any particular instance of what it is talking about.” Whitehead’s assertion reflected the ongoing modernist transformation in mathematics. However, by midcentury many mathematicians began to argue that far from being abstract thought, mathematics was a creative art. “Creative work in this field,” explained mathematician Adrian Albert in 1960, “has the same kind of a reward for the creator as does the composition of a symphony, the writing of a fine novel, or the making of a great work of art.” Mathematics fulfilled a utilitarian objective, to be sure, but just as important, if not more so, was its realization as a humanistic ideal. In making their claim to the arts, mathematicians adhered to the same theory of aesthetic autonomy advanced by humanistic critics of the time. Thus, mathematicians joined a host of modernist literary critics, public intellectuals, and art critics who argued that the dominant scientific discourse was in no way comprehensive enough to account for the fullness of human experience. Namely, the artistic conception of mathematics, according to which creativity, imagination, and freedom were crucial to successful work in the field, was fundamental to their humanistic vision. In this talk, I argue that it was mathematicians’ rejection of a binary division between abstraction and concreteness, idealization and utility that enabled them to claim their place as positioned simultaneously within the sciences and the arts.

Graphs as Designs: The Concreteness of Mathematical Abstraction in 1960s Design Theory

Theodora Vardouli

In opening the proceedings of “Basic Questions of Design Theory”, an NSF-funded symposium held at Columbia University in 1974, academic engineer William Spillers cast mathematical abstraction as foundation of a “common ground” between engineering and architecture — disciplines traditionally separated by professional circumstance. In invoking abstraction, Spillers’ alluded to methodological and theoretical operations of concretizing, in mathematical models, abstract and immaterial concepts of organization and connectivity that he saw as underpinning all design. Far from launching a new intellectual agenda, Spillers was documenting the ongoing dovetailing between ecumenist design theories and the mathematics of network and graph theory. During the 1960s design theory and methodology manuscripts were marked by an unprecedented proliferation of skeletal abstractions of “problem structures” and forms, seemingly denuding design of its visual, material, and embodied traditions. Complicating design’s turn to mathematical abstraction — a move that has been historicized as iconoclastic and dematerializing— this paper illuminates the role that the graph’s perceived visual and material concreteness played in rendering it the technique of choice in 1960s movements towards mathematization. Following famed mathematician and 1974 symposium keynote Frank Harary’s aesthetic reading of “Graphs as Designs”, this paper examines perpetual transpositions of concreteness between design and mathematics as they unfolded in the seminal design theories of Christopher Alexander (Harvard), the LUBFS Centre (Cambridge, UK), and Yona Friedman (France). Ultimately, this paper unveils the role of a mathematical object seductively oscillating between the visually concrete and the mathematically abstract in fusing epistemic cultures and introducing a new visuality in design.

Chair:

Theodora Vardouli

314. Sensitizing Autism Care: Access, Inequality and Context

Traditional (Closed) Panel

2:00 to 3:30 pm

Sheraton Boston: Floor 3 - Beacon G

Over the past twenty years, public awareness of Autism Spectrum Disorder (ASD) has grown alongside increasing rates of diagnosis. Work by social scientists has demonstrated how various social and professional groups employ different epistemologies and ontologies of ASD when they explain the causes, treatments, identities, and social consequences of this condition. Epistemologies of ASD are located in practices of knowledge making from genetics and neuroscience to diagnostic tools and treatments. Our understanding of autism also comprises alternative ways of knowing that have often been excluded from dominant accounts of autism, including the concept of neurodiversity and other sensibilities that comprise local forms of knowledge. This open panel aims to bring together STS scholars investigating different epistemologies or ontologies of ASD, to identify and articulate how STS has grasped and responded to this growing social phenomenon, and to address the limits of our analyses thus far. We seek papers exploring the tensions between dominant frameworks of ASD and sensibilities that are less known, imagined, or considered in current STS accounts. These sensibilities could include but are not limited to: implicated actors in autism whose voices are often left out or only discursively present across situations; gendered dimensions of autism diagnosis, treatment, or care; global and/or cross-cultural perspectives; relationships between human and nonhuman animals in autism science; and others. The panel will explore the sensibilities at play in perceptions and experiences of autism and aim to inspire new directions in STS research on autism and related categories of disability and difference.

Participants:

Alternative Ways of Knowing: Black Caregivers of Children with Autism

Jennifer S Singh, Georgia Institute of Technology

The cultural representation of caregivers who have a child with autism has been predominately white, upper-middle class, and married couples who have time, money and resources to engage...
and fulfill the various social and biomedical accountabilities to help their children. However, less pronounced are the voices of caregivers whose autism experiences are shaped in a structurally unequal society. Informed by the analytic framework of intersectionality developed by Black feminist scholars, this paper calls attention to the centrality of white female experiences in autism parenting and how the narrow scope of this dominant conception of parenting tends to marginalize those whose experiences cannot be described within these parameters. Based on over 20 in-depth interviews with Black women who are navigating autism services within the constraints of state-based health insurance and limited resources, this paper investigates structural inequalities that shape access to and experiences of autism services at the intersection of race, class, and gender. I highlight the narratives of Black female caregivers whose multiply burdened experiences are shaped by structural inequalities and whose voices are often marginalized, obscured and less understood. This paper will specifically focus on the structural inequalities shaped by and through the gendered politics of Medicaid. These alternative ways of knowing have been excluded in the representations of autism caregiving, which offer important insight to STS analyses by weaving together the inextricable link between autism diagnosis and service inequalities to structural, historical, and situational contexts of people’s lives as shaped by race, class, and gender.

Cultural Self-Critiques and the Making of ASD Sensibility in China

Emily Xi Lin, MIT - Anthropology

How do local cultures shape Autism Spectrum Disorder (ASD) sensibilities with respect to appropriate therapeutic provision and care? By drawing upon ethnographically grounded fieldwork in various autism rehabilitation centers in China, this paper suggests the importance of paying close attention not only to dominant biomedical narratives, but to cultural tensions in shaping ASD sensibilities in diverse contexts. Initially a diagnostic condition restricted to two urban centers in China during the 1980s, autism spectrum disorder (ASD) diagnoses and therapies have grown dramatically in urban China in recent years. The proliferation of therapeutic models, however, is fundamentally dependent on the assumed labor of parents of children with ASD, since the structure, success, and methods employed by therapies for autism are time and labor intensive. By paying close attention to how these rehabilitation methods serve, in form and substance, as critiques of Chinese parenting, the Chinese state, and the nation as articulated by parents of autistic children, special education teachers, and doctors, I argue that autism therapies in China draw upon the strategic use of larger cultural narratives and imaginaries about China, the developed West, in order to restructure parental care-giving experiences. This paper tracks how psychological knowledge, particularly behavioral theories, serve as markers of development (for child, parent, and the nation), and as moral strategies by which parents of disabled children resist stigmaization.

The “Western Disease”: Epistemic Controversies over Autism in the Somali Diaspora

Claire Decoteau

There is some statistical evidence indicating that Somali refugees and immigrants have high rates of autism spectrum disorder (ASD). Somalis in North America call autism the “Western disease” because there is no word for autism in the Somali language and because many believe it does not exist in Somalia. In Toronto, Somalian parents have forged an “epistemic community,” united around a coherent theory of the development of autism, its defining features, and most successful therapies. They work together with researchers to support the theory that gut bacteria is a causal factor for the development of autism. They argue that it is the diet and medical environment in North America (including the use of preservatives, genetically-modified processing, and antibiotics in both health care and food production) that explains the high rates of autism within the Somali diaspora. The paper argues that race and nationality have been underexplored in theories of embodied health movements. I argue that Somali parents’ organizing pushes theories of health social movements in new directions, by suggesting that experiences of forced migration and racial exclusion, as well as non-Western cultural ontologies of health, are important for understanding embodied experiences of illness and the forging of “politicized collective illness identities” that challenge mainstream scientific understandings of autism. As such, Somalis’ race and nationality play key roles in their pathways to group construction, in their embodied experiences of illness, and in their resources for mobilization.

Chair: Jennifer S Singh, Georgia Institute of Technology

Discussant: Chloe Silverman, Drexel University

315. Black Boxes at Work: Approaches to Studying Corporate Software in the Wild

Traditional (Closed) Panel

Sheraton Boston: Floor 3 - Beacon H

Interlinked, opaque algorithmic systems are increasingly integrated into working life. At the same time, we’ve seen methods and questions from science and technology studies migrate to communications, sociology, and information studies in order to study the design and impact of algorithms, particularly on political debate. Meanwhile, STS has taken part in the renewed interest in labor studies in a variety of fields, and a variety of work sites besides the factory. Our panel sits at the intersection of these trends, focusing on the digital sorting, and often automation, not just of work but the management of work. We combine a materialist approach to software’s design and use with a systemic concern for the changing nature of work. The objects of our concern range from the empirical challenges of automated systems and ever-changing platforms to the conceptual challenges of interpreting corporate finance or valuing secrets. We will offer brief descriptions of our research methods, challenges, and findings in support of a larger discussion on the conceptual and empirical challenges to researching black-boxed software and closed firms. Our goal is to offer both tricks of the trade for researchers interested in these topics, and provocations that help our emergent community of researchers to learn from each other. Questions we plan to address include: How to study design without access to raw code? How to study the history of systems whose development is often a trade secret? And how to dissect designers’ pitches for these technologies from their actual use on the ground?

Participants:

The Archives of Automated Hiring
Daniel M. Greene, Microsoft Research; Yeoma Ajuwua, The Berkman Klein Center for Internet & Society at Harvard University

Since at least the 1980s, corporations have sought to automate the process of soliciting, analyzing, screening, and interviewing jobseekers. Automated hiring technologies are sold by vendors to enterprises with the promise of reducing costs, centralizing control, and seamlessly selecting only the exact number of employees you need, with the exact skills you need, exactly when you need them. This paper focuses on one major actor in the automation of hiring and the design of online job applications: Unicruit, founded as Decision Point Systems in 1987 and acquired by workforce analytics giant Kronos in 2006. We explore the design history of online job applications and the infrastructure for automated hiring, examining the discrepancies between what’s offered and what’s built. It turns out that it’s not so much hiring that’s being automated, but rejection. We draw on a diverse set of archives: Financial disclosures, court cases, mainstream and trade press coverage, instruction manuals, and policy guidance from human resource professionals. While much of the code involved remains a trade secret, carefully weighing archives and authors against each other helps to disentangle pitches from uses. In particular, we focus on how different wings of Unicruit conceptualize “bias” as a problem for their software to solve. We draw on organizational studies and brokerage theory to conceptualize how these platforms restructure the labor market. Technological intermediaries like Unicruit’s Total Workforce Acquisition System become powerful by controlling the relationship between parties with congruous needs but conflicting
Fantasies of Finance: Researching Inequality Through WeChat’s Platform Economy
Yujie Chen, Chinese University of Hong Kong

The paper is about how to study WeChat, one of the most popular social media platforms (with 846 million users) among global Chinese communities and across the world. Among similar platforms, WeChat is remarkable for its “stickiness”, the way it keeps users within its ecosystem. It has grown from an Instant Messenger app (a copycat of Kik) to a mammoth all-in-one platform, on which users can engage in social activities, go online shopping, hail taxis and book flight and railway tickets, pay utilities, make donations to charity—the list goes on. WeChat is so sticky, so all-inclusive, that the Economist called it “one app to rule them all” and worried about its potential complicity in state censorship. How should we study the history of an ever-evolving and expanding platform? The motivation behind the design has been kept in the dark, but the platform has reached almost every corner of the public’s life. Through data triangulation, I will discuss how to assess and make the most of a variety of available data sources, including web archives, official statistics and financial statement, third-party records of its download history and reviews, popular online forums, trade publications, cultural discourses around technologies and the business, and so on. I pay special attention to frictions in different narratives and WeChat versions (e.g. Chinese vs. international), which may provide insights on how and when the platform operates differently and malfunctions. I will also discuss the challenges the unavailable or missing data pose.

Studying Stickiness: WeChat’s Platform Economy

Yujie Chen, Chinese University of Hong Kong

This presentation explores the minute financial operations dictating job reproducing it. Between the stories we tell about inequality and the machinery platforms. The other, in progress, explores how policy discourses around ‘good jobs’ and the ‘future of work’ emerge out of technological institutions. Particularly for technology companies loathe to disclose exactly how their product works, or how they make money from users, materials such as SEC disclosures, investor slide decks, shareholder reports, and financial statements can be important sources of insight. Some of these materials are publicly available—although rules differ between countries—while others emerge into daylight through court proceedings, leaks, or the embedded researcher’s dogged fieldwork. This presentation outlines a mixed-methods approach to corporate financial materials as a way to understand organizational behavior and the values embedded in both new technologies and institutional reforms. Importantly, corporate finances are not direct lines into the minds of founders, engineers, or managers. They are narratives of their own with specific audiences and specific rules governing what can and should be said. The line between closely-guarded fact and creative nonfiction is often blurred. I navigate these distinctions by reflecting on the insights gained from two large long-term projects, both broadly interested in racial and economic inequality. One, already completed, explores the rise of for-profit higher education and online credentialing platforms. The other, in progress, explores how policy discourses around ‘good jobs’ and the ‘future of work’ emerge out of specific technological imaginaries with long, racialized roots. By exploring the minute financial operations dictating job placement, or niche advertising, I reveal the close relationship between the stories we tell about inequality and the machinery reproducing it.

Against Access
Nick Seaver, Tufts University

As algorithms have gained notoriety among humanists, social scientists, and the general public, their defining feature has shifted from computation to secrecy. Algorithms may still be rationalizing, quantifying, and procedural, but first they are secret—hidden behind corporate legal protections or within complex computational systems. The blackness of the black box has gone from signifying a lack of concern for interiors to signifying hiddenness. In this situation, the social study of algorithms has been deformed, turned from an interest in the politics and pragmatics of computation to the acquisition of corporate secrets—piercing the legal shields constructed by corporations, or, to use a common metaphor that demonstrates the colonial and gendered politics of this approach, “opening the kimono.” In this paper, I argue against the privileging of access in the production of knowledge about algorithms. I make this argument as someone who achieved “access” in a conventional sense, in the course of several years of multi-sited fieldwork with the US-based developers of music recommender systems. Fetishizing access turns ethnographers into couriers of objective facts, rather than interpretations, and it obscures the ordinary opacities of social life, treating secrecy as an obstacle to be heroically overcome, rather than an everyday accomplishment that is continuously entangled with the production of algorithmic systems at all levels. I propose that empirical engagement with algorithmic systems remains a crucial and neglected practice, but that engagement is not circumscribed by something called “access.”

Chair: Daniel M. Greene, Microsoft Research
Discussant: Laura Forlano, Illinois Institute of Technology

316. Democracy, Science, and Technology III: Citizenship

Traditional (Closed) Panel
Sheraton Boston: Floor 3 - Berkeley
2:00 to 3:30 pm

Interactions between democracy, science, and technology run in both directions. From the appearance of the democratic state, the very field of statistics developed in support of evidence-informed policy-making, constitutions and statutory laws support intellectual property rights based on the belief that innovation is critical to state capacity, and governments have been involved in the practice of and funding for science and technological innovation. More recently, we have seen the rise of demands for democratic participation in decision-making about the funding of “big science” and the use of research findings, and both citizen scientists and scientist citizens have become important roles. Recent political trends, however, appear to be breaking these relationships. Policy-making is increasingly evidence-averse – or evidence-hostile – with consequences that touch the fundamentals of society and the environment. Shifts in funding and in regulation of science and technology threaten to undermine knowledge production and use. There is again the possibility that taking particular scientific positions may be treated as a political rather than intellectual matter. Already some scientists are declining to cross certain borders because of fear generated by political developments. This panel will look at relationships between democracy, science, and technology as they have been in the past, as they are in the present, and as they may be in the future. Papers dealing with the problem of developing arguments and evidence that will be persuasive in what The Economist described as a “post-truth” environment, hostile to facts and to reason, are particularly encouraged.

Participants:
Contestations over Spaces of (Un)Democratic (In)Transparency in Danish Wind Power Deployment Julia Kirch Kirkegaard, Technical University of Denmark; David Philipp Rudolph, Technical University of Denmark; Tom Cronin, Technical University of Denmark

Onshore wind power development in Denmark is becoming increasingly contested. With less and less land being available for wind farm development, wind farm project developers increasingly compete over access to the same scarce land resources. In this competition, land-owners have become powerful actors in Danish wind power development. Wind farm developers see themselves as being forced to engage in secret negotiations with land owners to gain access to specific portions of land through signing landowner contracts, long before the official planning process starts, and before the local engagement of communities begins. Denmark has an elaborate system for public engagement during the planning process, to try to enhance democratic involvement, however, the paper inquires into how this emergent informal ‘shadow planning process’ for wind power, as well as how the power relations it constructs, produce
The Government, Experts, Media and Public in the Safety system of the nation. Decision in the science and technology community need the policy making. Such a case study reflects that democratic debate could not reach a consensus, and delayed the relevant cited the rational style in the debate, while the opposing group based on animal or human experiments? 2. The supporting group or the precautionary principle? 3) Toxicology test should be contested energy justice. Contested democratic role in the green energy transition, and over insight into controversies over wind power technology, its contested democratic role in the green energy transition, and over contested energy justice.

The Government, Experts, Media and Public in the Safety Assessment of Agricultural GM Organism: A Case Study in China Zhicong Shang, University of Chinese Academy of Sciences

Since 2010, more and more government agencies, scientific experts, media and the public participated in the debate about the policy on the safety assessment of agricultural GM organism in China, and gradually grew into two groups – the supporting group and the opposing one. By a field research on the debate about the safety assessment of the GM rice, and interview with the key participants, we found following facts. 1. With different members, the two groups took different channels and ways in their opinion expression, debating on the following three questions: 1) who owns the final authority in agricultural GM organism safety assessment? 2) Which principle should be taken in the safety assessment, the principle of substantial equivalence, or the precautionary principle? 3) Toxicology test should be based on animal or human experiments? 2. The supporting group cited the rational style in the debate, while the opposing group showed a strong style of populism and nationalism. 3. Due to the lack of institutionalized public debate platform and rules, the debate could not reach a consensus, and delayed the relevant policy making. Such a case study reflects that democratic decision in the science and technology community need the supporting from the public culture of democracy and democratic system of the nation.

Priority Setting in Food and Health Research Domain: Legitimacy Criteria and Processes Lada Timotijevic, University of Surrey; Shumaisa Kahn, University of Brighton

Amidst an ongoing challenge of research governance, calls for democratizing science continue – currently under the auspices of responsible research and innovation (RRI) – as a means of enhancing legitimacy. RRI calls for a “collective commitment of care for the future through responsive stewardship of science and innovation in the present” (Owen et al., 2013, 36, emphasis added), by adhering to the principles of openness and transparency, anticipation and reflexivity, and responsiveness and flexibility. Engagement of societal actors early in the development of innovation trajectories is considered an essential principle to enable building of shared models of science and innovation pathways based on ethical principles. These ethical evaluations should not only relate to science and innovation processes, but also question and lay open the underlying purposes and motivations of the actors engaged in these. The legitimacy of the process is thus gleaned not from the adherence to the democratic principles of representation (of political equality), nor in terms of instrumental focus upon the vertical translation of pre-deliberation interests and perspectives into outputs, but from the characteristics of the communicative context that nurtures mutual respect and shaping of new ideas.

We report on a large cross-European study of different stakeholders’ beliefs about science governance legitimacy, through a series of stakeholder workshops across 9 EU countries (N=295). Six concepts emerged to delineate stakeholders’ beliefs about legitimacy, influence, representation, procedures of research priority setting, strategic vision, impact of research, and epistemic focus. The pattern of concerns across these themes was found to be significantly different across the stakeholder groups. Business sector stakeholders were more concerned about strategic vision and impacts, and third sector organisations (TSO) expressed more concern about influence and representation.

These statistically significant preferences indicate stakeholder-specific beliefs about input legitimacy: whilst TSOs derive their assessments of legitimacy from the democratic/deliberative aspect of the process of priority setting, the business actors assess legitimacy based on instrumental-substantive (or output oriented) sources of legitimacy. Such clear mapping of positions of stakeholders points to the deeper issue of the distancing of the research governance processes from the democratic majority, and threatens to undermine the moral authority of science. The effect of this may be a rejection of scientific solutions to longstanding societal problems, eschewing a potentially catastrophic “post-truth” era.

Chair: Sandra Braman, Texas A&M University

Discussant: Christoph B Graber, University of Zurich

317. Practicing Urban Planning

Traditional (Closed) Panel

2:00 to 3:30 pm

Sheraton Boston: Floor 3 - Clarendon

Participants:

Data Margins: Situating Planning Support Technology between Ethnographic and Statistical Methods in Brazilian Informal Settlements Kristine Staphany, The University of Texas at Austin; Letícia Paluzzi Perez, Universidade Federal do ABC

The challenge of urban planning in the Global South is not that data is scarce, but that it is unevenly sourced. This is evident in cities like São Paulo, Brazil, where statistical analysis is being used to envision new urban orders that overlook areas devoid of data infrastructures. This limitation challenges the extent to which more data catalyzes transformative change, and presents two questions for planning technologists who seek alternative approaches: (1) how can data sourcing empower citizens to transform their own neighborhoods; and (2) with what methods can small data streams resonate throughout big ones? We respond with a comparative evaluation of ethnographic and geostatistical methods for revealing the unevenness among data used within Brazil’s current planning context. Via a case study whereby civic and institutional actors have appropriated an outmoded housing system for education in a consolidated informal settlement, we demonstrate the relevance of drawing the margins of data into the center of urban production processes. We argue that big and small data can evolve in concert, understanding how can better mobilize the data movement’s vast knowledge base for equity in planning support technology.

Studying Participatory Planning Tools beyond their Design Expectation Shahnoor Hasan, UNESCO-IHE Institute for Water Education; Jaap Evers, UNESCO-IHE Institute of Water Education; Margreet Zwarteveen, UNESCO-IHE Institute for Water Education

Any entity, including participatory planning tools, is insignificant in isolation. They attain meaning, through their numerous associations to other entities based on mutual interests, throughout its inception, development, promotion, and use. This paper regards these multitudes of associations as actor-networks, which shape up what, why and how a participatory planning tool performs in a particular context. Understanding such associations helps us to realize that participatory planning tools do not perform by definition in the way they are expected to. We invoke not to abide by the assessments on performance of participatory planning tools that are mostly on their design expectations, and
are taken into account as given or inevitable facts. We propose an approach to study participatory planning tools, beyond their design expectations, through their associations with different actors during the course of their development and mobilization. We took inspirations from the actor network theory to develop the approach. We adopted acts of translation of the actor network theory into our approach that will help researchers to study participatory planning tools in actor-networks to understand what tools did and why, and how they perform. We also reflect on an ongoing study where we have used the approach to understand what participatory scenario development tool did in the Mekong Delta Plan 2013.

Smart Cities: The Intersection of Citizenship Alyssa Ramsey, Georgia Institute Of Technology Recent discourses on smart cities have been primarily focused on the deployment of technical infrastructure such as sensor installation, data collection, and security measures. These practices, however, are accompanied with tacit and explicit ideas about ideal cities and citizenship. As one of the cities selected for the White House smart city initiative, Atlanta, Georgia is the focus of this research. Atlanta is deploying a test-bed for smart city technologies along the North Avenue corridor, one of the main thoroughfares of transportation in the city which connects East and Westside communities. The first phase of deployment focuses on the intersection of North Avenue and Spring Street. Atlanta formed SmartATL, an office within the Atlanta Information Management Department (AIM), with the specific mission to advance and implement smart city initiatives in partnership with industry, university and municipal organizations. The development of a smart city is ultimately meant to increase citizen well being by helping cities better serve its citizens. Atlanta is focusing on improving mobility, public safety, and sustainability in an effort to achieve this goal. Researchers and employees from the AT&T Innovation Lab, Georgia Institute of Technology MetroLab Network and the City of Atlanta SmartATL organization are key to understanding the development of smart cities in Atlanta. This paper presents the preliminary results of an ethnographic study that looks closely at these entities aimed at unpacking the driving ideas behind smart city initiatives and critically engaging its key assumptions of progress and citizenship. Understanding these perspectives allows us to broaden the conversation around smart cities in a meaningful way leading to a new understanding of what it is like to be a citizen in the era of smart cities.

Situating Smartness: Towards a Productive Critique of Urban Science Anthony Levenda, Arizona State University What if urban science was developed with the idea that knowledge was always situated and partial? This paper draws on feminist theories of knowledge production and feminist STS to critique the current state of smart cities development which has culminated in the emergence of a “new urban science” that draws on urban informatics and analytics to optimize the function of urban systems. From this view, the city is a “system of systems,” a computational organism, embedded with code and algorithms that take the “cyborg urbanization” metaphor all too literally. Drawing on ethnographic studies of smart technology development and applications across sectors, from energy utilities and city planning offices to smart apartments and university research laboratories, this talk highlights the multiple situated practices that shape smart city technologies and knowledge bases. Elucidating these approaches is key to unpacking the inherent partial and situated production of urban knowledges. The paper follows Haraway’s (1999:181) suggestion that our inquiries should embrace “politics and epistemologies of location, positioning, and situating, where partiality and not universality is the condition of being heard to make rational knowledge claims,” to critique urban science and informatics. If we critique and question urban science, its promises of generating new universal laws of cities and new understandings of urban life through ubiquitous data collection, then we might undo the valorization of data-driven smart urbanism, and highlight new potentialities for re-making the city in democratic, albeit technologically mediated ways.

Chair: Anthony Levenda, Arizona State University

318. Art, Artifacts and the Truth Machine: Mike Lynch, Past and Future Traditional (Closed) Panel 2:00 to 3:30 pm Sheraton Boston: Floor 3 - Commonwealth The 2016 Bernal Prize was awarded to Michael Lynch (Cornell STS) for long-term and influential contributions to Science and Technology Studies, and the Society for Social Studies of Science (4S). Lynch served as 4S President from 2008 to 2009, and as editor of the journal Social Studies of Science for ten years. His books include Art and Artifact in Laboratory Science (1985), Representation in Scientific Practice (Revisited) (1990/2014), Scientific Practice and Ordinary Action (1993), and Truth Machine: The Contentious History of DNA Fingerprinting (2008). This session will recount and honor Lynch’s contributions, providing an opportunity to reflect on both the past and possible futures for STS and 4S.

Participants:
Gary Downy, commenting on Michael Lynch Gary Downey, Virginia Tech
"Science and Technology Studies on Trial: Dilemmas of Expertise" (2005, Social Studies of Science) (co-authored with Simon Cole)
Joan Fujimura, commenting on Michael Lynch Joan Fujimura, University Of Wisconsin-Madison
"Ontography: Investigating the Production of Things, Deflating Ontology" (2013, Social Studies of Science) (co-authored with Simon Cole)
Alan Irwin, commenting on Michael Lynch Alan Irwin, Copenhagen Business School
"Science as a Vacation: Deficits, Surfeits, PUSS, and Doing Your Own Job" (2009, Organization)
Martina Merz, commenting on Michael Lynch Martina Merz, Alpen-Adria-Universität Klagenfurt, Austria
"Against Reflexivity as an Academic Virtue and Source of Privileged Knowledge" (2000, Theory, Culture & Society)

Chair: Kim Fortun, University of California Irvine
Discussant: Michael Lynch, Cornell Univ.

319. Performing Economy Traditional (Closed) Panel 2:00 to 3:30 pm Sheraton Boston: Floor 3 - Dalton Participants:
Infrastructuring to Envision Alternative Economies Maryam Heidaripour, Illinois Institute of Technology
The political rhetoric of today economy has framed innovation as reproduced and reserved by specific people in specific locations. This framing has shaped the discourse of who is deserving and who is not deserving and gradually sets the foundation of social discrimination, inequality, and exploitation as part of the neoliberal economy. Given the claim that entrepreneurs are inventing the future, this paper envisions alternative future in which performing economy contributes to socio-technical transformation. To that end, this paper focuses on two community-based initiatives in Chicago that their contribution to economy is not recognized due to incompatibility with mainstream narrative. In these counter hegemonic exemplars, different but potentially related future-making practices occur; they are shifting the emphasize from individual entrepreneur to collective economic development and moving forward the discussion of entrepreneurship to the kind of society and the kinds of citizens that it is creating. This paper applies community-based participatory design methods to design
strategies for infrastructuring and socio-material negotiations to form actionable aspirations for the betterment of these initiatives. Researches in STS and design use infrastructuring for aligning values and resolving conflicts across contexts; however, infrastructuring for these exemplars is revealing the socio-material mechanisms for agonistic debate to reinvigorate democracy in grassroots contexts.

The Institutional Logics of Non-Institutional Economies: Value Identities in the Bitcoin Experience. Alexander Kinney, University of Arizona

In institutionalized market economies, clearly defined boundaries demarcate the meaning of “value” as a function of price and exchange. However in alternative economies characterized by the absence of these referent institutions, to what extent do actors rely on market value or interface with other symbolic perceptions of value? To answer this question, I draw on institutional theory to examine how 23 adopters of the emerging cryptocurrency Bitcoin conduct boundary work as a method to define the Bitcoin experience. Utilizing Correspondence Analysis (CA) techniques, I show how adopters exhibit patterned logics of “doing” Bitcoin that simultaneously couple and decouple both market and symbolic perceptions of value in the process of embedding into this new financial landscape. This paper provides support for dynamic theories of market activity, and further contributes to the broader debate concerning the influence of new media as a disrupting and stabilizing process that elicits new understandings of previously taken for granted aspects of social life. I argue that the case of Bitcoin is a useful proxy for understanding the how the uncertainty of innovations can stimulate momentary rationality and initiate challenges to dominant frameworks concerning practical, material, and ideological components of technological adoption.

On the Claims for Prosperity in the Age of Brexit and Trump Raphael Sassover, University of Colorado, Colorado Springs

In addition to questionable modes of populism that have emerged after the Brexit vote and the election of Donald Trump to the American presidency, economic presuppositions have gone unquestioned across the Atlantic. Renewed calls for protectionism (in the name of nationalism) and for market-capitalism as the harbinger of prosperity for all (endorsing neoliberal ideology) have found classical liberals and modern leftists on the defensive. Among the accomplishments of the social study of science has been the exposure of frames of reference within which knowledge claims are considered scientific and the presuppositions on which they rely. This presentation will link the alleged scientific claims of economic theory with ideological convictions to critically reassess their unwarranted conclusions. The social features of economic science, from moral principles and social conventions to legal statutes, will be shown to be more important both methodologically and morally than the pretenses of exclusive scientific credibility. This is not to say that scientific knowledge and empirical evidence are superfluous, but only to contextualize them discursively in a manner that highlights the ways they help policy-makers overlook concerns with the dignity of people who inevitably participate in economic transactions.

Ethical Reflections on the Equity of the Current Basic Health Insurance System Reform in China: A Case Study in Hunan Province Junxiang Liu, Center for Bioethics, School of Humanities, Peking Union Medical College, Beijing, China

Background: China's current basic health insurance reform aims at promoting equity in the economic accessibility of health services for all citizens to better ensure health care justice. It is important to assess equity not only from a socio-economic perspective but also from an ethical angle. Method: This paper investigates the basic health insurance system of Hunan Province in China based on local health care reform report and the basic medical insurance policies and documents. Arguments: This paper evaluates the equity in health insurance reform from three dimensions: universality, equal opportunity of access to health care, and reducing inequity in insurance benefits to improve the health of the vulnerable in terms of human rights framework. According to insurance types as well as their classification standards, mechanisms and utilization, we demonstrate that the reform has alleviated out-of-pocket payment burdens to a certain degree by increasing coverage rates and access to health services for most people. However, it does not completely establish equity because 1) universal coverage has not necessarily ensured equal opportunity of access for all socio-economic classes. Rather, opportunity is only equal for people who are in the same health insurance scheme. 2) the reform has not yet realized vertical fairness in the benefits of insurance and improvement in health status of those worse off. Contributions: The study reasonably concludes that an ethical platform is a crucial component of promoting insurance distribution justice, and building on solid ethical pillars will contribute to more positive and fair results in the future.

Chair: Maryam Heidaripour, Illinois Institute of Technology

320. Sensing Subjectivities: Biosensing and Human/Machine Entanglements

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Exeter

This panel explores issues of embodiment, perception, and new forms of human/machine entanglements that occur through biosensing technologies. Biosensors create data about bodies or their environments using an ever evolving array of sensor technologies and data infrastructures. No longer the exclusive domain of medical experts, biosensing technologies invite an increasingly wide range of people to contemplate bodily phenomena like emotional arousal, or microbes in the gut, through the lens of what a sensor can see. Much broader than fitness trackers or the Quantified Self, movement, biosensor data is caught up in a wider range of situations where sensory aspects of subjectivity and social relations come to the fore, and where what is “real” becomes a matter of concern. Notions of vulnerability might be pressed into biosensor design features, while design practices might be used to unpack the privacy and surveillance issues that biosensing inevitably raise. Biosensors might be mobilized for practices beyond supposedly “objective” measurement, while technologies like virtual reality (VR) might be repurposed in order for psychologists to measure and sense the body more precisely. Thinking through biosensing as a multi-sited phenomenon invites critical but generative understandings of biosensors, ones that might afford alternative and just possibly better sense-abilities and sensitivities. To this end, the panel brings STS scholars into dialogue with STS-minded human-computer interaction scholars who also physically build sensor systems, in order to expand our sensibilities about what might be materially and socially possible.

Participants:

Mood Tracking and the Emotional Politics of Interfaces Charles Luke Alan Stark, Department of Sociology, Dartmouth College

Mood tracking applications for smart phones and other mobile devices are the latest in a genealogy of techniques and technologies for managing human emotions that extends from the late nineteenth century through to the present day. This paper explores how two popular mood-tracking applications, Moodscope and MoodPanda, incorporate insights from both clinical psychology and user experience (UX) design best practices into their respective interface designs. Grounding its analysis in critical computing methods such as Values in Design (VID), critical design, and reflective design, the paper argues that the particular interface design choices of these two applications serve to influence their respective dynamics of sociality, self-fashioning, and connections to institutional control. More broadly, the design of these applications signals a broader shift in sociotechnical definitions and discourses regarding the feeling individual. These shifts have produced a new “emotive politics of interfaces” at work both acutely in these applications and more broadly across contemporary digital media. The every-day, felt
Emotional Interpretation & Materiality of Biosensory Data: Narratives and (Consumer) Brainscanning

BioSENSE, UC Berkeley School of Information

What can machines know about a person’s mind, even theoretically? Rather than looking at empirical answers to this question, I discuss what people think the answer to this question might be, in relation to their interactions with particular technologies. What about the mind do people think machines can measure, and how can interactions with specific technologies influence those beliefs? This paper disrupts this question through the relatively recent phenomenon of consumer brain-scanning headsets. Linking past STS work on brain scanning in the lab to the relatively recent phenomenon of brain-scanning wearable, I highlight reconstructions (and continuities) in the supposed capabilities of this technology. I argue that a complex web of charismatic examples, spanning from science fiction to medical practice, meets with an existing web of beliefs about technical progress to produce strong prior beliefs about the capabilities of brain-scanning devices and, by extension, the capability of connected devices to “read” or “decode” the contents of the mind. Zooming back out to the broader world of biosensing devices, I advocate for the importance of understanding end-user beliefs about what biosensor data can (and cannot) reveal about the mind. A better understanding of these beliefs will allow us to build theories about end-user behavior, specifically around decisions to disclose or withhold data collected from the body.

Emotional Interpretation & Materiality of Biosensory Data: Design Studies & Reflections

Noura Howell, School of Information, UC Berkeley

Biosensory data is being linked with emotion, with claims that particular data patterns indicate discrete categories of universal fundamental emotions. Drawing from such claims, many approaches in affective computing and consumer biosensing devices foreground machine-driven emotional interpretation or categorization, which neglects the socioculturally embedded, emergent, and performative nature of emotion. In contrast, my design research seeks to foreground biosensing’s entanglements with self and others, body and environment, and support human-driven emotional interpretation from within this apparatus. Drawing from approaches such as critical technical practice and critical making, I probe alternative relations and reconstructions involving humans and biosensing technology. In this paper, I will reflect on biosensing artifacts with ambiguous displays made of “unstable” materials, such as thermochromic fabric clothing, that I designed and implemented. In these designs, this material is unstable as a biosensing display in the sense that it changes color both in response to the biosensory data of the wearer and in response to environmental temperature. While leveraging ambiguity is a known design tactic for supporting open-ended reflection, and these projects have contributed reflections around ambiguity for biosensing displays at other venues, here I would like to reflect on the materiality of biosensory data/display. Specific to these designs, how do sensing on skin and displaying on clothing enact or breach agential cuts between self, body, clothing, and environment? More broadly, how can unstable materials help shift designs away from biosensing displays as representationalist toward biosensing displays as performative?

Exploring Biosensing Privacy Futures with Design Fiction and Science Fiction

Richmond Y Wong, University of California, Berkeley

Emerging biosensing technologies present new questions about privacy and surveillance, although anticipating the specific contours of emerging privacy issues is difficult to do in advance, given the diversity in sites where biosensing is occurring and can potentially occur, and given new emergent meanings and interpretations of the conceptual designs and objects emerging within a narrative or story world – as a way to interrogate multiple biosensing futures. Specifically, I report on a research process that generated a set of design fiction concepts related to biosensing technologies, inspired by the 2013 science fiction novel “The Circle,” articulating a range of social, technical, and legal configurations of the future. By creating design proposals that explore connections between the novel’s fictional world and present and future realities and imaginaries, these designs open a liminal space between ‘real’ and ‘fictional’ for further exploration. I reflect on how this process allowed us to critically engage issues of surveillance and privacy, and how this mode of engagement allowed us to explore entanglements between ‘real’ and ‘fictional’ worlds, connecting sensing technology in popular culture, research, and commercial products historically, in the present, and in imagined futures. I also discuss how these design fictions can take on new meanings when shared with non-designers. New concerns, connections, and contestations emerge as informants imagine alternate (or challenge existing) configurations and assemblages of biosensing technologies.

Virtual Sensing: Perceptual Illusions in the Age of Virtual Reality

Lisa Messeri, Yale University; Lauren Welch, University of Virginia

Virtual Reality (VR) has long been used in psychological research. Even before the current VR consumer boom, scientists have experimented with the technology’s potential as a research tool, therapeutic device, and training apparatus. This paper draws on ethnographic research with a perceptual psychology lab that has for several decades incorporated VR into its research practices. Most recently, this lab has sought to replicate classic perceptual illusions in VR. If our sight deceives us in the real world, will it do so in the virtual world as well? For the psychologists doing this research, they are entering a debate in the field about how we perceive the world and whether it is exclusively physiological or also influenced by our cognition. If an illusion can be replicated in VR – where the senses are under complete experimental control – something beyond these senses must be influencing perception. VR, then, becomes not simply a platform for research, but a tool to test perception itself. The concept of “illusion” will guide this paper, analyzing laboratory talks about the classic and VR iterations of these experiments and how in both cases researchers discuss “illusions” as a way of destabilizing “reality.” As perceptual psychologists test theories of how we sense the world, VR is both the ultimate experimental test bed but also part of the unresolved debate over the relationship between our selves, our environment, and our ability to distinguish what is real from what is not.

Chair: Dawn Nafus, Intel
Discussant: Alex S Taylor, Microsoft Research

321. A Sense of Balance: Techniques and Technologies of Self-regulation

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Fairfax A

This panel puts in conversation a set of cases in which different techniques and technologies serve to mitigate, correct, arrest, vitalize, or otherwise help bodies and selves to live with and through imbalance—vestibular, physical, affective, moral, and creative. Panelists consider a varied repertoire of self-regulating devices, modes of engagement, and contexts: Joe Dumit considers improvisational contact dance as a window into the political, gymnastic and practical ways that the concept-practice of balancing gives shape to our lifeworld; Rachel Prentice reflects on balance as a physical and moral category for horse riders through the lens of equestrian dressage and equine-assisted physical therapy; Keith Moore examines how vertigo therapies help counter the temporal disorientation that can arise for domestic violence victims during courtroom proceedings;
Hélène Mialet explores the management of type 1 diabetes, focusing on the different epistemologies operating in the creation of digital and organic devices that are capable of attuning to a fluctuating body. Natasha Schüll queries the phenomenology of mood management devices and apps, finding that wearable sensor technology serves as a kind of thermostat to help selves carry the volatilities of modern living. Thinking across these assorted techniques and technologies—entrainment, improvisation, reenactment, attunement, and digital modulation—the panel will explore how harmony, stability, resistance, control, and regulation are created (or not) between human (and nonhuman) bodies and their environments. What new political and moral ecology can we imagine?

Participants:

Sensing Oneself Balanced: Training, Improvisation, Politics

Joseph Dumit, UC Davis

Inside of the norming power of “balance” as a concept, lies the layering of balance as a moving-idea of ideal-movement. How “we” learn/incorporate the concept-practice of balancing gives shape to our lifeworld in political, historical, gymnastic and practical ways. Even the figuring of our “sense” of balance within and without “the five senses” is consequential for the shaping of ability and disability. Geurts classic study of something like balance as a sixth sense among the Anlo-Ewe, suggests that immediate bodily experience is not outside of the foundational categories of culture. This complicates the world--defined by Stengers with Whitehead as that which our senses testify to. At a more practical level among those who start thinking conceptually with training, the effect of ideas about body and movement on the practice of moving has been critically examined as “ideokinesis” by Mabel Todd in her 1930s Posture Lab -- in which students became taller in a semester of imaginative exercises, since taken up into the training of dancers. Bourdieu describes this loop of habitus as: history turned into nature. Csordas describes perception itself “in the midst of arbitrariness and indeterminacy”. Through long-term participant observation with self-described professional movement trainers - - contact improvisation teachers, tightwire walkers, and gravity bodyworkers, this paper will explore balancing from the inside out and upside down.

On Balance Rachel Prentice, Cornell University

The English language contains many sensory and postural terms that are simultaneously physical and moral; one can be upright, strong, or a slouch. The physical version of most of these states can be read immediately in the body. Yet senses like balance and kinesthesia are, in the words of Oliver Sacks, hidden. The lack visible sense organs and manage inward self-regulation. These senses often go unnoticed except through their lack. Indeed, physical therapists in the United States are apt to talk about strengthening “balancing muscles,” as though balance is a function of strength, rather than equilibrium. Yet balance is not purely a physical phenomenon. It is also a moral and cultural category connected to well-being and harmony. Anthropologists have shown that balance can be bodily, moral, and social all at once. This paper builds on an ethnographic study of dressage and equine-assisted physical therapy, both worlds in which balance is a vital physical requirement, to show how North Americans have lost balance; that is, how physical balance has become detached from moral and psychological balance. Part of a larger project on sensory ways of knowing in human-animal interactions, this paper explores balance as a moral and physical category for riders and horses.

Witnessing Whiteness: A Vertigo Story Kelli Moore, NYU - MCC

Phenomenic awareness of the slant rhyme between whiteness and witness informs this paper analyzing proproception in domestic violence courtroom. In Anglo-American law courtroom procedures such as the manual passing and digital projection of evidentiary photographs disrupt the temporal equilibrium of judicial proceedings and result in a feeling of vertigo that demarcates the boundaries of evidence publication and witness-spoken testimony. This paper brings together three literatures—antique scientific definitions of vertigo, the established clinical link between vertigo and anxiety, and research on colorblindness—to bear upon what Sheila Jasanoff shows are the ways the law uses science to construct techno-scientific objects and witness credibility. Reading “in the break” between witness and whiteness, this ethnography of courtroom evidentiary circulation practices and physical therapies for vestibular imbalance expands scientific theories of affect beyond the historical configuration of the face.

Sensibility, Body, and Attunement Hélène Mialet, York University STS

A patient with type 1 diabetes lives on the edge of a mini-earthquake, a “body quake.” The danger is always present, running under the skin, ready to appear, to surprise, to unsettle, to destabilize, to kill. Caught between extremes of constantly moving blood sugars, of highs and lows, of hypoglycemia and hyperglycemia, the body can crumble and shut down at any moment. We are all mortal, but we forget about death until it strikes. Someone with a chronic disease, however, is constantly reminded of mortality and of the fact ‘of having a body.’ Indeed, the body might fail at any time—threatening to overwhelm the mind’s desire to fight and resist. Diabetics liken this to living just beyond the fear and struggle of being under water and unable to breathe—in a moment of giving-in to a pleasurable and ethereal numbness, a kind of dream, a kind of nirvana. To survive, the person with type 1 diabetes has to be ‘read’ with incredible acuity. The disease thus narrates a story about a body that doesn’t stop at the boundaries of the flesh to incorporate machines, humans, and animals in its functioning. Type 1 Diabetes is also about a complex “surveillance” system of reading and recording made by digitized and organic senses that are attuned (or not) to the flesh. Feedback loops, attunement, flows and frictions, crash and repair. What is at stake, perhaps, is another conception of the body.

Sensor technology as a thermostat of the self Natasha Schull, NYU - MCC

Having long employed technology to record, reflect upon, and regulate bodily processes, moods, and even moral states, over the past decade humans have increasingly turned to digital sensors and algorithms to manage these aspects of existence. An ever-expanding array of devices and apps gather real-time information from bodies and lives, convert this information into electrical signals, and run it through software programmed to detect otherwise imperceptible patterns of being and down-regulate problematically excessive behavior—overeating, overspending, overspending, over-engaging in social media. Responding to enthusiasts’ promise that microcomputational sensors afford humans a “sixth sense,” “a datasense,” or “a new sense organ,” hopeful consumers embrace wearable sensor technologies and smartphone apps as thermostats for modern living that can bring their daily micro-rhythms (bites, steps, sips, and breaths) into alignment with healthy ideals and, in so doing, help them maintain bodily and affective equilibrium as they move through the confounding, tempting, and sometimes toxic landscape of everyday choice making and lifestyle management. Drawing on ethnographic fieldwork, the paper focuses on self-trackers’ experience—and experiments—with mood-modulating devices and apps.

Chairs:

Natasha Schull, NYU - MCC
Hélène Mialet, York University STS

322. Frontiers of Climate Change and Extinction: Rendering Worlds Familiar and Strange

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Fairfax B

How are frontiers (for instance, the “new frontier” of Mars, the Arctic as the “final frontier”) being identified, and what are the transnational politics of access? How are innovations in science and technology informing ways in which frontiers are being interpreted and actualized as accessible, and how is that access variously framed politically, economically and ethically?
How is climate change an ethical boundary involving social structures and behaviors? This panel seeks papers that probe the intersection of frontiers, climate change, technoscience and exploration, bringing new perspectives to the rendering of worlds familiar and strange. Papers may include a wide range of subjects, including indigeneity, extinction tourism, governmentality, travel, resource extraction, neoliberal capitalism, markets, technologies, “vanishing” people and worlds, national identity, alterity, migration, neo-colonialism, media, cultural policies, cultural memory, civilizationist rhetoric, human exceptionalism, spectacle, performativity, the politics of spectatorship, and the interplay of “nature” and “culture”.

Participants:

Extinction Tourism: Climate Change, Artic Human Zoos and the Politics of Spectatorship Annette Bickford, York University

Through a perfect storm of circumstances, the Arctic is arguably under siege. The region has come up against a convergence of accelerated climate change, ocean acidification, contamination from mercury, PCBs, etc. According to the Arctic Council, over the last four decades, global warming is most evident in the Arctic region. In fact, “the magnitude of temperature increase in the Arctic is twice as large as the global increase.” This presents a global challenge, because the Arctic is a major driver of global weather systems. When environmentalists talk about climate change, they tend to focus on its enormous and potentially catastrophic costs. But there are others who prefer to focus on its benefits—and profit from them. The Crystal Serenity cruise ship embarked from Anchorage, Alaska, August 27, 2016 on a voyage through the once-impassable Northwest Passage, which became ice-free in summer 2007 for the first time on satellite record. Passengers each paid between $22,000 and $120,000—plus $50,000 in “emergency evacuation” insurance. This has been described as “the world’s most dangerous cruise” and “the ultimate expedition for the true explorer.” An historic voyage, it marks the opening of one of Earth’s last frontiers. It is also a massive, diesel-burning, waste-dumping, ice-destroying assault on what remains of the planet. This ship—which is accompanied by an ice-breaking boat and two helicopters for sightseeing—has an enormous carbon footprint that exacerbates ice loss and climate change in the Arctic. The technological developments (attending climate change) that have made this expedition possible must be considered in relation to the wider social contexts. Inuit leaders worry that visits by cruise ships could overwhelm their communities, seriously damaging the Arctic ecosystem. And yet, Inuit communities are compelled to service these tourists, who land in their tiny communities in zodiacs, cameras at the ready. Canada is one of the world’s wealthiest nations, yet its Inuit communities suffer from chronically urgent poverty. The Inuit in these communities have been taking workshops to learn traditional beadwork and skin muskox hair into yarn for Inuit-made arts and crafts to sell (cheaply) to the tourists. This paper considers the politics of spectatorship, climate change, and extinction tourism in the Northwest Passage.

Genetics as a New Frontier for Environmental Climate Change Responses Valerie Berseth, Department of Sociology, University of British Columbia; Tim Hawkins, Department of Forest Resources Management, University of British Columbia; Jordan Testak, Department of Sociology, University of British Columbia; Ralph Matthews, Department of Sociology, University of British Columbia

The impact of a changing climate on marine life is turning oceans into one of the most important frontiers in the socio-political battle over the environment. Increasingly harsh ocean conditions have led to rapid declines in several salmon species along the Pacific Coast, threatening both vulnerable salmon runs and the food sovereignty, security, and cultural survival of coastal indigenous and settler communities. In response to declining fisheries, hatcheries continue to produce juvenile salmon that are biologically and behaviorally distinct from “wild” salmon, fostering concerns that hatchery salmon are replacing the vanishing “wild” salmon stocks. In this paper, we examine hatcheries as sites of contested knowledge and biopower and we raise questions about the complex relationships between culture, risk, and the bodies of humans and non-humans. Drawing on semi-structured interviews with Canadian genomic scientists and an analysis of news articles from 2005 to 2015, we examine discourse surrounding Pacific salmon hatcheries and the human and non-human risks associated with these operations. Our findings reveal that advances in genetic technologies inform both support for and resistance to human interventions in oceans management through hatcheries. We demonstrate how biotechnologies such as hatcheries represent a problematic but persistent “outside” of climate change adaptation and explore the impacts of knowledge-based resource management on salmon bodies and the humans that depend on them.

Media and Transnational Climate Justice: Indigenous Activism and Climate Politics Matthew Tegelberg, York University

At UN climate summits, indigenous activists from around the world gather to fight for climate justice. This paper discusses their experiences with and strategies towards media. It looks specifically at the transnational character of indigenous activism, addressing tensions and intersections between geographical scales along which the environment, politics and media are understood (local, national, international and transnational) as well as between media forms (legacy, social and indigenous media). Social media and self-mediation offers opportunities for indigenous activists to connect and to challenge the hegemony of national legacy media; in particular, hegemonic views on how nature, people and rights relate to the nation-state. We need however to consider not only who has a voice but also what audiences listen to and interact with these voices. The paper thus builds on interviews with activists and on quantitative and qualitative analysis of legacy and social media content. Theories on agonistic democracy and on justice, responsibility and solidarity in a global age frame the study.

How Controversies Start a New Life: GMO and Non-GMO soybean Sustainable Certification Julia Silvia Guivant, federal university of santa catarina

This article is part of the Cosmo-climate project that was coordinated by the late Ulrich Beck. In the domain of new low-carbon technologies addressing the global risk of climate change. This recognition of risk is crucial for a transitional turn in the economic sector in the direction of low-carbon innovations. This can be understood as part of collective innovation networks that may give rise to ‘cosmopolitan innovations’. In the cosmopolitan order eco certifications have become crucial for private business that operate at a global scale in order to obtain legitimatization. We will focus in the sociotechnical networks around animal feed innovations, where certified genetically modify (GM) soy, a controversial innovation in itself, has became the main ingredient. We follow the GM soy from producers, certifications of low carbon emissions, European supermarkets, animal farmers, animal feed companies and associations, scientists, regulators and also consumers. We characterize this network as pragmatic, not free of criticism, formed by heterogeneous social, political, economic and scientific actors. We go from Brazil to the EU and China, mainly using documental research and interviews with key actors. Finally we argue that that there is a global process of self-transformation of the rules of the markets, where environmental, scientific and ethical values are at stake through the process of low-carbon technologies and certifications.

Chair: Annette Bickford, York University

323. Institutional Theory and Large Technical Systems

Traditional (Closed) Panel

2:00 to 3:30 pm

Sheraton Boston: Floor 3 - Gardner A

In studies of large technical systems, models of social constructionism have emphasized agency over structure. Agency-related concepts like actor networks, interpretive flexibility, and system builders have remained influential for years. There have been calls for greater emphasis on
structural approaches. Klein and Kleinman’s “The social construction of technology: Structural considerations” (2002, Technology & Human Values) reviewed structural theories in sociology and argued for their relevance to STS research. Despite being widely cited, the article’s impact on STS research has been limited, with few of the citations in the flagship journal Science Technology & Human Values. The literature on large technical systems has explored structural and institutional concepts. Perhaps most notable here is the edited volume, The Governance of Large Technical Systems (Coutard, 2002) which brings an institutional perspective. However, this work, like other such edited volumes, has emphasized richly descriptive case studies over theoretical considerations. This open panel calls for research on structural studies of large technical systems that emphasize institutional theory. We invite papers that draw on such works as the institutional theory of Elinor Ostrom, regime theory from international affairs, and policy models of federalist and constitutional structures. The goal is to promote discussion among scholars sharing a common interest in the role of institutions in large technical systems but drawing on a variety of theoretical models.

Participants:

Governance Institutions and Large Technical Systems Hans Klein, Georgia Tech, School of Public Policy

In this paper I present a conceptual framework for understanding the development of large scale systems. The framework is based on institutional theory and draws on a variety of literatures, including “new institutionalism” theory (Ostrom, 1990), social contract theory (Rousseau, 2002), legal theory (Ellickson, 1991), and social control theory (Gottfredson & Hirschi, 1990). This institutional approach is used to illuminate important questions in the STS domain, most notably how to understand the development, governance, and social responses to large scale systems (Hughes, 1987; Coutard, ed., 2002; La Porte, ed., 2012). The framework has two main conceptual dimensions. First, new technologies create a situation comparable to the philosopher’s “state of nature” in which individuals find themselves in novel social relations that can give rise to conflicts and opportunities. Technologies create new rules to regulate social relations, and that demand for rules leads to new demands on existing rule-making institutions or to the design of new institutions. Inversely, the social relationships can be modified by changes to system design, so that social constructionism can be driven by a desire to design social relationships. The second insight is that there are multiple layers of governance, i.e. there are multiple institutions that design and enforce norms. These layers of governance are: technical standards, administrative law and policy, statutory law, and international agreements. At each of these layers, actors enter into social relationships and create norms to govern those relationships, relying on existing institutions or designing new institutions. The levels interact with each other so that, for example, technical standards may be shaped by the other layers’ concerns about system regulation, societal politics, and supra-national geopolitics. Using this conceptual framework we can cut through the complex history of the Internet and craft a narrative of multi-level governance, in which technology-induced novel social relationships feed back to technology design as well as induce institutional design and norm-making. The paper employs a combination of literature review, conceptual development, and case study.

Artifact as Product: Google and Google Car at the Intersection of Social and Material Networks John Paul Lunsford, Cornell University, Department of Communication

Artifacts in technical systems have received attention as interpretative subjects in Pinch and Bijker’s (1987) Social Construction of Technology, as actors in Latour’s (2005) Actor Network Theory, and as intersections of political discourse as in Winner’s (1988) analysis of Robert Moses’ bridges. As Klein and Kleinman (2002) note, these approaches acknowledge structural influences but ground their arguments in examples of diverse acts of agency, lessening attention to the structural influences within which social actions are embedded. In institutional settings Rosen (1993), Strasser (1989), Klein and Kleinman (2002) argue advertisers shape the market by shaping how artifacts are understood. Carroll and Hannan’s (2004) focus on forms suggests an artifact’s product that interacts with social and material structures and its role as a material dimension of institutional interaction with large technical systems.

Social and Data Design Aspects of the Inter-Institutional Justice and Peace Information System in Colombia Javier Jimenez Becerra; Jorge Rojas Alvarez

At various stages of peace processes, expert knowledge through information systems, has become a fundamental tool to generate mechanisms of storage and data analysis, seeking to document reliably on situations human rights violations, supporting design of public policy for repair and contributing in the construction of collective memory. The armed conflict in Colombia dating back of several decades, since 2005 has been plunged into an unprecedented process to use in the midst of war, mechanisms designed initially for post-conflict situations. This is the case for the enactment and enforcement of Law 975/2005 named “Justice and Peace,” for which the 2010 Sistema Interinstitucional de Información de Justicia y Paz - SIJJYP (Inter-Institutional Justice and Peace Information System) was implemented in order to keep information official consolidated, real-time all the components for their development. In this process involved experts with varying degrees of influence on the activities of policymakers, who contributed to the design of data on sensitive issues such as the very definition of victim, family, community and means of redress, including the location of kidnapped or missing persons and the location of the bodies of the victims and deliver them to their families. This contribution seeks to reveal, from a socio-technical perspective, how an information system as Inter-Institutional Justice and Peace Information System - SIJJYP was built, which relevant social groups are part of it and several controversies around these. Also inquires how the data that was structured, systematized, arranged and interchanged has consequences beyond purely technical matters. In the context of the “Law of Justice and Peace” in which priority is given to the construction of the judicial truth on the historical, it is essential to ask about the role of SIJJYP as a system of information considered an aseptic mediator of truth and Transitional Justice policy.

A Political and Technological Anatomy of a Mobile Phone Crack Niels Jorgensen

Members of the German Chaos Computer Club cracked a GSM mobile phone in 1998. They cloned the phone's SIM-card, and used the fake card to make a phone call that appeared to use the authentic card. The paper's description of the crack is based on documents and interviews. The paper employs two sets of concepts, political and technological, to go beyond the local context. The approach is akin to using structural concepts, as suggested by Klein and Kleinman (2002) in their discussion of limitations of the 'seamless web' approach of the early SCOT-approach, and to analyze (also) at a meso-level, as suggested by Misa (2009) in his discussion of multi-scale inquiries. Politically, for at least some of the Club's members, the crack served the Club's advocacy of open standards and unrestricted, strong encryption. They publicized the crack and argued it demonstrated weaknesses of the secrecy-by-obscurity approach in GSM 2G. The power held by the Club was small compared to that of the
European telecom industry, but the hackers were part of an informal alliance with university researchers and parts of industry in the 1990s crypto-controversy. Technologically, the crack relied on the processing power of a contemporary PC, and engineering and cryptological knowledge to build a SIM card-reader and a key-search program. Around 1999-2001, government and industry decisions were made in Europa and the US to use strong and open encryption, including in GSM 3G. Perhaps this can be characterized as temporary closure and stabilization, since recently law enforcement agencies and others have proposed to reintroduce restrictions on strong encryption.

Institutions and Infrastructures: Audience Manufacture and the Making of a Market Lee McGuigan, University of Pennsylvania

This paper advocates the merits of synthesizing institutional theory with critical infrastructure studies. Drawing on perspectives from organizational analysis, economic sociology, and social studies of technology, I argue that institutions and infrastructures are mutually constituted, both analytically and practically, and that the dialectical relationship between the two is a vital element of technological and social continuity and change. In his pioneering study of electrical power systems, Thomas Hughes recognized that infrastructures comprise not only instruments but also political and administrative conventions, routines, and resources. It is in the process of binding technological affordances to relatively durable cultural and organizational forms that socio-technical systems become (provisionally) operative. Incisive analysts of infrastructures, including Susan Leigh Star and Paul Edwards, have further elaborated the institutional dimensions of technical systems and the infrastructural functions of institutions. To demonstrate the utility of a synthetic approach to institutions and infrastructures, I analyze the manufacture of audience commodities in media industries. Audience manufacture provides a felicitous site for this marriage because, like financial futures markets, for example, it is a system organized around an abstraction (attention) which is given tangible expression through the organizational arrangements and technological designs that structure the market in which it trades. The reliance on standards for coordinating transactions further intensifies the extent to which infrastructures and institutions together, construct this market, rendering evidence of attention as data that can be verified, packaged, and exchanged. Audience manufacture is defined by the technical and administrative structures that channel flows of information.

Chair: Hans Klein, Georgia Tech, School of Public Policy

324. Biolegalities in Globalization: Investigating Ethical In/Sensibilities

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Gardner B

The life sciences are fundamentally reshaping law and legal practice. This panel engages with contemporary cross-border challenges and implications of new biotechnologies and biological knowledges in the field of law. It is interested in papers that examine the complex and often contested ways in which biotechnologies or biological knowledges are reworked by, with, and against legal knowledge. Reproductive technologies, genetic privacy, GMOs, biobanks, patents and intellectual property, transgenic animals, nanotechnology, neuro-interventions, gene “editing”, xenotransplantation, and diasporic proxies in global biomedicine are increasingly becoming common practice in the 21st century. While the growing scholarship on biopolitics has studied the ways in which such practices are entangled with certain modes of governance and neoliberal economies, their translations, deployments, and reconfigurations in the realm of law or legal practice has been relatively understudied. The panel seeks to explore the insensibilities of legal knowledge in responding to challenges actioned by emerging biotechnologies and biological knowledge. The normative is a constitutive element in these responses and the panel explicitly seeks to examine how ethical and normative sensibilities play out in expanding jurisdictions such as in European or international law. We welcome paper proposals that can speak across fields of legal studies traditions, the sciences, and the Humanities, and are especially interested in empirical cases that look at the larger geopolitical context in which jurisdictions increasingly expand and cross states and nations.

Participants:

Towards a Legal Taxonomy of Hybrid Life Marc De Leeuw, The University of New South Wales

How living beings are classified matters in life as in law. The basic legal division of life in western jurisprudence has long been based on the distinction between person and thing. Persons cannot be owned and things do not have personal immunities or rights. For centuries the legal status of biological life fluctuated indecisively between these two poles, since it was not clear how personality depended on embodiment, and conversely the material components of biological life had not yet been discovered. Recent developments in synthetic biology suggest that such indeterminacy will be difficult to maintain in the future. In January 2017, biologists announced that they had developed a ground-breaking new method enabling them to grow human stem cells, made from a patients’ skin, into a pig embryo. This new method creates a new species of hybrid life, a human-organ-growing-pig, which can be used for xenotransplantation or the grafting or organs and tissues between different species. The accelerated hybridization of our bodies gives rise to new communities of shared biological life which bring with it an urgent need to determine and stabilize their legal status and those of their members on the basis of sound philosophical inquiry. This paper investigates alternative legal classification for hybrid life forms and combines philosophical theories of embodiment, legal theories on taxonomies, and STS and posthuman theories on hybridity. It offers a novel way to understand the biological status of hybrid life in the 21st century.

Gene Editing Technologies and Emerging Issues with the Biosafety Law in Japan Tomiko Yamaguchi, International Christian University

The advent of gene editing technologies sheds renewed light on the artificially created categories of the arts and sciences and of the natural and the unnatural. Plant breeding can be accomplished through many different techniques ranging from simply selecting plants with desirable characteristics to more complex molecular-level techniques. Gene editing technologies is the latter that provides targeted gene modification. Among a range of breeding techniques, some are regulated under the Cartagena Act, while others are not. Regulation of gene editing technologies is in the grey zone, as these technologies may utilize both insertion of genes from other species and a removal of gene, a technique known as a gene knockout. The former will be regulated while the latter may not. These phenomena indicate that emerging biological techniques present entirely new challenges to the existing body of legal knowledge. This paper provides a snapshot of the interpretations of scientists and technocrats about regulation of gene editing technologies. This study found actors draw sharp distinctions between gene editing and other techniques in terms of the degree of naturalness and unnaturalness. These distinctions are crucial in deciding regulatory framework and also its commercial viability from the eyes of people in industry. Multiple methods were used to collect data, including interviews with scientists and people in seed industries and content analysis of published reports by science academy and government agencies.

Expanding Ethical Sensibilities in Agricultural Biotechnology: Regulating Socio-Economic Considerations in Kenya and South Africa Koen Beumer

Article 26 of the Cartagena Protocol on Biodiversity provides countries with the option to include socio-economic considerations in decision-making about genetically modified organisms. Considerations such as religious concerns, farmers profits, employment effects and cultural uses of biodiversity have been shared under this banner. Whilst Article 26 has been hailed
as a triumph of developing countries over neoliberal trade laws whose sensibilities are restricted to normative considerations related to human health and the environment (Kleinman & Kinchy 2007; Kinchy, Kleinman & Autry 2008), both academics and policy makers are struggling with the question how socio-economic considerations can be included in decision-making. This paper therefore investigates the various ways in which heterogeneous networks that transcend the relatively fixed internationalization as a phenomenon worthy of study. Nevertheless, from spaces where they are enacted (from laboratories to cities to national Chairs: pioneering works in the field, such as Shapin and Schaffer’s Leviathan and the Air Pump and Latour’s Science in Action, there is interest in exploring how knowledge changes when it travels from its place of production to where knowledge is consumed. From this open panel we want to analyze the current and seemingly unstoppable trend of knowledge internationalization by addressing issues such as (i) the internationalization of knowledge in both social and natural sciences, (ii) the policies that encourage internationalization and the challenges they bring about, (iii) the effects of asymmetries in knowledge circulation, (iv) the role of materialities (e.g. instruments, standardized procedures, software, etc.) in the internationalization process, (v) the relevance of language(s), and (vi) the adaptations of researchers, research teams, and institutions to increasing pressures to internationalize their work by national and international funding agencies. We call together scholars from different disciplinary backgrounds, different geographical locations, and using a diverse range of theoretical and methodological approaches in order to problematize internationalization and to understand its macro and micro configurations.

Participants:
A Critical View on Fostering "Science": between Borders and Obstacles Stefan Klein, Universidade de Brasilia (UnB)
The hereby proposed paper aims to address recent efforts concerning internationalization of academic research in Brazil. More specifically, it departs from a rapid discussion concerning Brazil’s waves of R&D expansion, that increased primarily from around the 1960s onwards and gained another boost starting after 2004, to take up a recently implemented programme called “Science without borders” (“Ciência sem fronteiras”), that financed research stays abroad for undergraduate and graduate students as well as post-doctoral scholars. The hypothesis is that this programme not only represented an interesting twist in the form of internationalizing academics but, at the same time, should be understood as an immanent consequence of the expansion of Brazilian higher education that took place at the beginning of the 21st century. Since the programme persisted until recently and thus still has not been thoroughly evaluated, a small sample already offers an interesting opportunity to discuss certain particular traits and confront them with more common and general issues. Underlying this reflection are concerns dealing with the "model" of higher education system in Brazil as well as the center-periphery relation, leading me to comparatively look at the: (i) kind/location of foreign institutions chosen; (ii) areas (officially limited to more "technological" disciplines) and (iii) distribution of these different fellowships among types (undergraduate, graduate and post-doctoral). This allows me to better understand its objectives along with problematizing and dealing with a few contradictory aspects, elucidated under the arguments brought forward (among others) through the indigenous knowledge (Akiwowo, 1988) and academic dependence (Alatas, 2003) approaches.

At the Periphery: International Collaboration Challenges of Return Migrants in India Meghna Sabharwal; Roli Varma, University Of New Mexico
Scholars have pointed out challenges in international scientific collaborations between developed and developing countries due to dissimilarities of scientific practice and professionalization of collaborators. Such challenges are likely to be insignificant if collaborators in developed and developing countries are professionally socialized in the same scientific culture. We present findings from a National Science Foundation funded study with 80 faculty in science and engineering (S&E) who returned to India after study and work in the U.S. These faculty were socialized in the scientific culture of U.S. academia where they learned how to conduct experiments, interpret results, judge their own work, publish papers, and collaborate with their peers. When they returned to India to take a faculty position, they knew collaborators in the U.S. with desired skills and vice versa. Yet, return Indian immigrants face numerous challenges in establishing successful collaborations with their American peers. Interestingly, this is not the case for them to collaborate with researchers in Europe with whom they have little historical connection. We employ the core-periphery theory, which outlines power relationships between the developed core and developing periphery. Findings show various inequities that exist with researchers in the U.S. that pertain to resources, authorship and attitude towards collaboration.

This paper analyzes the production and circulation of knowledge and expertise in the development aid world, following interventions led by the World Bank, a major international organization of the field that has received considerable public and scholarly scrutiny. It explores the roles of World Bank consultants and staff as both “producers” and “brokers” of knowledge, the production and dissemination of reports, and the way this knowledge circulates internationally and is appropriated “locally”. These analysis offer empirical pathways for a study of the “Knowledge Bank” that the organization claims to be. As all those activities relate to “competitiveness”, the meanings and effects of such a concept will be discussed with particular focus. This paper uses a 8-month fieldwork related to two World Bank interventions, called “technical assistances”, dealing with the competitiveness of the construction sector in Mali and Cote d’Ivoire. Using ethnographic materials and interviews with consultants, world bank officers, government officials, and construction sector stakeholders, the paper argues that a focus on “technical assistances” (which are activities occurring before or in parallel to development projects) offers a renewed understanding of both knowledge-production activities undertaken by the World Bank, and of the politics of international intervention based on knowledge production. The paper shows how technical, policy-oriented knowledge and international expertise are authorized to circulate within specific boundaries and legitimate such concerns as “competitiveness”, resulting in interventions that contribute to reshape the relation between two poles of the concept, understood within the organization as pertaining to a unified national economy but also to some specific entities – firms or entrepreneurs – inside it.

The Internationalization of National Energy Research Groups: Network Formation and Political-Scientific Strategy

Victor Luiz Alves Mourao, Federal University of Viçosa (UFV-Brazil); Daniela Alves, Universidade Federal de Viçosa; Daniel Aparecido Cabral, Federal University of Viçosa (UFV-Brazil)

The internationalization of science and technology has been a subject of extreme relevance. This research project, still in progress, aims to produce reflexive knowledge about this process of internationalization of Brazilian research groups and scientific production. We propose to investigate the content of the agreements, the conflicts and interests that mobilize and are mobilized by these exchanges. We are guided by the perspective of Latour, for whom the work of the sociology of science is to follow the network traffic involved in the scientific activity, the actors, institutions, objects and people recruited within these networks. Our methodology aims to collect qualitative data mainly through semi-structured interviews guided by a script. The interviewees were selected from individual and collective involvement with international research networks in the area of energy. We also consulted research reports and their scientific production available on online platforms. The following hypotheses on international cooperation have been produced: (1) there is a cleavage between national and international scientific production, with different levels of legitimation and scientific recognition of researchers in regard to both poles, and a concentration of “periphery” activity in the training of human resources; (2) there is an internal process of intellectual extrapolation, not just of external-internal scientific domination, in which the national groups and researchers themselves are structured in such a way as to unequally receive the foreign scientific production and agenda; (3) international cooperation has greater strategic content on the part of the center than on the periphery, which would produce an unequal process in terms of technoscientific and political results for each group and each country, also depending on the singularity of the area of knowledge and technological application of each area of knowledge. In the renewable energy sector, Brazil has played a leading role because of its abundance of raw materials and policies already developed in the past. Our interest is to understand how the international networks of the energy sector incorporate or elaborate brazilian networks and actors, producing international alignments and misalignments, allowing the analyst to go beyond the diagnosis of the internationalization of Brazilian science measured only by the number of publications in other languages than portuguese.

How to Build a Modern Scientific Research Institute in China: A Case Study of National Institute of Biological Sciences, Beijing (NIBS) LI ZHANG, National Aacademy of Innovation Strategy; HUI LUNO, National Academy of Innovation Strategy,CAST; RUI CHEN, National Academy of Innovation Strategy,CAST

Driven by cascading advances in computer sciences and genetic technologies, the biosciences are in a period of explosive growth. The significance of this revolution is not just providing a molecular foundation for our understanding of biological systems; also the future of medicine and the health of humankind. With the objective of advancing fundamental life sciences and realizing leapfrogging development of the nation, the Chinese central government began to construct an internationally first-class institution in the field of fundamental life sciences. NIBS was first outlined in 2000, officially inaugurated in 2005, and overcame early bumps in the road to enjoy rapid and then stable development. Whether NIBS is currently among the top life science research institutes in the World or not? Whether NIBS has meet the aim of “Product high level academic research achievements, cultivate outstanding talent and promote institutional innovation”? This paper reviewed the achievements and contributions of NIBS in year 2004-2016, in terms of academic output, cultivation of talent, institutional innovation, and cultural environment. It also summarized past lessons and experiences, including weaknesses, and project to suggest ways to address future challenges. To obtain data relevant to specific pre-formed questions, the research integrated multiple methods including text mining, data mining, information mining, and opinion mining, also used a bibliometric method to analyze the number of NIBS papers published, their citations, the impact levels the journals in which they were published, and authorship, based on an analysis of papers published by NIBS in the Scopus system of Elsevier. The research will contribute to discussion on technological innovation and transfer, talent cultivation and institute management in health filed which will definitely contribute to STS.

Chair: Leandro Rodriguez Medina, Universidad de las Americas Puebla

326. Television as a Contested Site of the Creation of Knowledge and Social Imaginaries

Traditional (Closed) Panel
2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Jefferson

Television has long been a site of impermanent knowledge production in societies all around the world. Marxist philosopher Louis Althusser linked the mass appeal of television to his notion of Ideological State Apparatuses, whereby ideological hegemony could be achieved and reinforced through its programming. Conversely, according to film theorist Andre Bazin, each shot in film was a revelation of God expressed through images of creation. While scientific educational programs have aimed at creating public awareness of science, fiction-based television programming has also been equally responsible for creating new ways of thinking about scientific practices and technologies in a rapidly changing political, ecological and social landscape. As historian David Kirby has suggested, television allows viewers to virtually witness science. Yet, the impermanence of the medium also leads viewers to question the supposed objective reality of science. This panel seeks to explore the ways television programming has co-produced social imaginaries and situated knowledge in a variety of realms and societies, and the ways in which television programming and their appeal can teach us about the salience of specific public imaginations concerning the state of the world, the presentation of varying knowledge systems from feminist, postcolonial, indigenous and other ideological standpoints. We are seeking to create a relatively informal discussion regarding the impacts of television programming on science, science...
Illusions of Actuality: Exploring Fictional Elements of Factual Television Programs

Ingrid Ockert, Princeton University

Celebrated television director Sig Mickelson called it the ‘electronic mirror.’ Since its appearance in American homes in the late 1940s, the television set has carried substantial cultural weight in American households. Erik Barnouw, a noted communications scholar, has commented that, “Viewers everywhere tend to accept it as a window on the world.” Yet, such claims take the veracity of video for granted. Savvy historians of technology and communication have complicated a one-dimensional telling of a two-dimensional medium. Similarly, in my paper, I will tug at the stability of science educational television as a category of ‘factual’ storytelling. My research of American science series reveals that educational television is just as imagined as other genres of television. Creators of science series carefully scripted elements of their programs to create idealized visions of scientists (the imagined creators) and their audience. Additionally, I argue that a greater awareness of the genre of science television’s creative malleability contributes to the creation of public knowledge about science.

Shark Week, Sitcoms, and Soap Commercials: How Illusions of Actuality: Exploring Fictional Elements of Factual Television Series

Framing Health and Illness: The Case of the Television Magazines

Pascale Mansier, LCP-IRISSO

France Health magazines have been broadcast since the early 90s were long dead there, if they ever lived beyond academic study. From these initial observations, we trace participants’ unconscious or unexamined moments of contact with science, which range from representations of germs in cleanser commercials to shifting and contradictory nutritional shared over social media, to cooking habits. This research examines not what happens where people seek out science, but rather, where science finds them.

Television Autopsy: Dead Dinosaurs, Live Scientists and Social Imaginaries in a National Geographic Special

Elana Shever, Colgate University

Paleontologists love dinosaur “monster” movies and television shows, I discovered to my surprise, while conducting fieldwork among invertebrate paleontologists in the Morrison Formation of the western United States. The “science wars” of the 1980s and 90s were long dead there, if they ever lived beyond academic texts. My paleontologist interlocutors saw, and sought, a mutual conviviality between the dinosaurs on screen and in excavation, laboratory and collection sites. They viewed popular media neither as a vehicle for spreading falsehood nor as a window into actual science-in-the-making, but as a tool for inspiring interest, excitement, and even passion, for long extinct creatures. This paper is part of my ongoing ethnographic study of public engagements with dinosaur paleontology in the contemporary United States. The project aims to examine how people are using dinosaurs to think, in a wide range of ways, about what it means to be human today. Thus far, I have conducted eight months of ethnographic fieldwork at popular museums, parks, entertainment and research sites in the Denver Metropolitan Area and the surrounding Morrison Formation. I am currently analyzing the treasure trove of interview, participant-observation and textual materials I have gathered through this fieldwork. The proposed paper tackles one small piece of this. In this paper, I analyze a National Geographic Special called T. Rex Autopsy. This television show featured one of the curators I have been working with as part of a team of scientists conducting an autopsy on a life-size and life-like Tyrannosaurus rex cadaver made out of synthetic materials. I examine the show’s content, in relation to its reception by audience members at a live showing and online, in order to explore what it reveals about one of two possible themes (depending on panel placement): the real/fake dichotomy or the confluence of violence, death and pleasure. In either case, this paper hereby contributes to Science and Technology Studies by addressing how science-themed television can help generate knowledge and social imaginaries that are more about the contemporary world than about the prehistoric one.

Trickster Epistemologies and Worldviews in David Lynch's Twin Peaks

Aadita Chaudhury

David Lynch’s iconic TV show Twin Peaks has been hailed as one of the classics in contemporary serial television dramas. While television and film historians and scholars may remember Twin Peaks for its discommodulating narrative strategies, cinematographic choices and complex semiotics, science and technology studies (STS) scholars may be compelled by its presentation of truth, the nature of reality and the often divergent and conflicting metaphysical worldviews. Particularly of interest are the eclectic mix of investigative strategies used by the character of FBI special agent Dale Cooper in contrast to the positivist and anthropocentric methodologies used by mainstream law enforcement establishments, and the entanglements of such strategies with what has been presented as Indigenous methodologies from the Pacific Northwest and Tibet. In this paper, I will show that from an epistemological perspective, Twin Peaks presents “trickster” more-than-human epistemologies and methodologies as a way to counter positivist modes of evidence gathering and other knowledge practices often associated with Euro-American worldviews at the cost of Indigenous knowledges. As many STS scholars, such as Donna Haraway, Kim Tolfit and Shraddha Subramaniam, Zoe Todd and others have noted, decolonial methodologies can help us not only challenge established regimes of power and order, but also extend our worldviews to consider parallel realities. While far from unproblematic, Twin Peaks, may show a popular audience the value of decolonizing knowledge in the face of complex social and environmental problems.
The Ends of the Nervous System

327. The Ends of the Nervous System

Traditional (Closed) Panel

2:00 to 3:30 pm
Sheraton Boston: Floor 3 - Kent

The nervous system has long been seen as a mediating organ, warning the individual of external threats, tempting the individual with worldly pleasures; the nervous system depends upon the senses to bring the world into individual sensibility, and is thereby structured by sociotechnical environments and cultural value systems. Moreover, the nervous system is the basis of individual experience of the world, and might be seen as the primary mechanism through which social obligations, cultural expectations, and institutional demands are meted out; as an organ, it is intrinsic to the individual and dependent upon a world to mediate. And yet physicians and scientists often conceptualize the nervous system as a monadic, bounded, internal system, divorced even from other organ systems. But there have been other ways of conceptualizing the nervous system, including mid-20th century cybernetics, recent attention to the intersection between the gut microbiome and cognition, anthropological descriptions of non-scorpocentric sensory systems, and more recent experimentation with sense-integrating prosthetics that simulate touch. In this panel, we invite papers that interrogate the nervous system. What other models might be employed to conceptualize the nervous system and its fundamental role in mediating individual and group experiences of the world? How might the integration of these ways of conceptualizing the nervous system challenge how the body is configured in its relationships to the environment, other species, and technology? And how might reconceptualizing the nervous system enable new ways to think about the brain and its capacities, neurological disorders, aging, and intimacy?

Participants:
Connectivity Itself, Or, How to Distribute Your Nervous System
Matthew Wolf-Meyer, Binghamton University

Bioethics in the US has long been predicated on the assumption that it is protecting value – the value of biologically-derived goods or the value of life itself. This is unsurprising, given the genealogical condition of bioethics as a practice, which has developed alongside biopolitical regimes of reckoning human value, particularly as labor potential, but, increasingly, in biocapitalist terms, as valuable resource. Might we rethink bioethics as a discipline poised to combat biopolitical conceptions of life and value – and, in so doing, rethink what the human is and what its place in a broader sociotechnical environment is? In this paper, I reexamine the case of Terri Schiavo, a woman held in a persistent vegetative state for 15 years, which inspired a variety of crises among US bioethicists – particularly stemming from the assumption that life is intrinsically valuable, yet indebted to biocapitalist conceptions of potentiality. Adopting a Spinozist approach, I argue that conceptualizing Schiavo as a necessary node in a distributed nervous system changes the nature of the questions being asked about her and thereby disrupts assumptions about what is bioculturally correct. In thinking through the distributed nervous system – the necessary connections between people, knowing and unknowing, bioethics that stands against value and stands for an ‘ethics of touch’ might be articulated, thereby upsetting the biopolitically-informed biocultural project and replacing it with one that upsets liberal assumptions about how humans matter, thereby situating connectivity above value.

The Case of Animal Electricity: Brains, Machines, and Electrical Ontologies
Caitlin Shure, Columbia University

In the late nineteenth century Luigi Galvani and Alessandro Volta famously debated the existence of an electricity specific to organic systems, then termed animal electricity. Despite flawed methods, the heart of Galvani’s argument proved accurate: animal nervous systems are driven by a unique breed of electricity. Nonetheless, “animal electricity” is now an antiquated term. Sparsely, scientists deploy the word “bioelectric” in reference to embodied currents; more often, however, electricity appears, beguilingly, as a single material phenomenon that inhabits organic and inorganic systems alike. Here, I acknowledge consistencies between what happens in nerve fibers and in power lines; however, I argue that the assumption of a singular electricity—rather than electivities—obscures important distinctions between biology and technology. What might otherwise seem a semantic quibble obtains new relevance as the twenty-first century reconfigures the human-machine relation. I consult discourse on brain-computer interfaces (BCIs) to demonstrate the hazy line between analogy and equivalence in the context of neural and synthetic circuits. Close reading of modern BCI literature is complemented by a social-historical analysis that traces the trajectory of human-machine electrical conflation from telegraphy through iPhones. I consider the implications of substance-versus process-based electrical ontologies and frame BCIs as a mechanism and microcosm for (mis)interpretations of the cyborgian subject as a continuous electric circuit. I argue that discussion of a singular electricity (1) elides material differences between humans and their machines; and (2) neglects the materiality of electricity itself, consequently minimizing awareness of human and environmental fragility.

What Colour is the Brain? Johanna Pokorny, University of Toronto

Much attention has been paid to technoscientific visualization and its claims to authority and objectivity in representing the body, especially brain, transparent and knowable to the expert gaze (van Dijck 2005, Daston and Galison 2007, Joyce 2008). Drawing on “What Color Is The Sacred?” (Taussig 2006), if what instead of transparency, we use Taussig’s explorations into the animations of color to think anew the practice of visualization, imagining, and imagining in science? Instead of following mainly brain scans (Dumit 2004), in this paper, I use color as a lead to a wider discussion of neuroscientific visual cultures and natures of vision. This paper is based on ethnographic research carried out in a brain research laboratory in Ottawa, Canada, with a group of neuroscientists who attempt to formulate a nonreductive, embodied approach to the brain. I consider colorful ethnographic moments such as art therapy research carried out in the lab, an art show put on by neuroscientists, and lab discussions about the subjectivity of color and the controversy over viral memes of black and blue dresses. In such instances as these, I argue, neuroscientists express less transparent notions of visualization than their neuroscientific models believe, disrupting their view of vision as a retinal process, as producing objectivity, and instead introducing something more akin to Taussig’s notion of bodily unconscious. By rerouting scientific visual culture studies from constructing transparency to querying color, I hope to think more expansively about visual sensibilities in the neuroscience laboratory and the materiality of color in science.

The nervous system, senses, and signals in human and non-human environments
Stephanie Lloyd, Université Laval

The nervous system (NS) plays a key role in communications between the “outside” and the “inside” of the body, modulating our responses to environmental stimuli. Recent research suggests this relationship is more complex than previously believed, and vital. Indeed, our NSs are now understood as dependent on environmental stimulation for their very development, presenting a view of the NS not as set off from the world, but rather in constant and necessary engagement with it. “Normal
Affect and Emotion across Sites of Technoscience

Matthew Wolf-Meyer, Binghamton University

Affect and Emotion across Sites of Technoscience 1

Sheraton Boston: Floor 5 - Public Garden
2:00 to 3:30 pm

Affect and emotion not only connect the mind and the body, they also connect us to human and nonhuman others. Affects and emotions are ambivalent: they may both challenge and strengthen dominant social orders. This panel seeks, firstly, to understand the complex ways in which emotion and affect shape the production, circulation, routinization and ambivalent: they may both challenge and strengthen dominant social reality in which emotions often override factual evidence. The deployment and science studies in the emerging political landscapes of “post-truth” connected? approaches that address affect/emotion, for example, as flows, intensities, empirical site or historical moment. We welcome a range of theoretical shape our social worlds. The panel is open to papers that address any technoscientific society. We hope to chart elusive and elucidatory challenge, we seek to connect empirical analyses of emotions at specific objects, socially negotiated structures, or cultural frameworks that shape the intersections of culture, capital, and human experience that such extraction indexes and makes possible. In so doing, the work engages STS by situating the technoscientific approach to emotions so prevalent in our current moment within a broader social and cultural problems and priorities.

Affective Engagement as a Skill: Craftsmanship in Stem Cell Science

Matthew Wolf-Meyer, University of Maryland, College Park

Technoscience of Predictability

This paper builds on the author’s forthcoming work on “emotional extraction.” Emotional extraction is defined in two ways. One iteration involves the transfer of emotional resources from one individual or group to another—such as that which occurs in care work or emotional labor—but which also increasingly includes the labor of creating new technology, such as affective computers. A second instance of emotional extraction entails the use of knowledge—oral—theories about emotions, including emotional intelligence—to generate conclusions or predictions about human behavior. The paper argues that emotional extraction is intensifying across various technoscientific sites, such as the development of emotionally aware technologies, often for the purposes of predictability. It then offers ways to think about this newly intensifying resource extraction and the intersections of culture, capital, and human experience that such extraction indexes and makes possible. In so doing, the work engages STS by situating the technoscientific approach to emotions so prevalent in our current moment within a broader social and cultural problems and priorities.

Affective Engagement as a Skill: Craftsmanship in Stem Cell Science

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Feeling for the Future: Emotional Extraction and the Technoscience of Predictability

Jan M Padios, University of Maryland, College Park

This paper builds on the author’s forthcoming work on “emotional extraction.” Emotional extraction is defined in two ways. One iteration involves the transfer of emotional resources from one individual or group to another—such as that which occurs in care work or emotional labor—but which also increasingly includes the labor of creating new technology, such as affective computers. A second instance of emotional extraction entails the use of knowledge—oral—theories about emotions, including emotional intelligence—to generate conclusions or predictions about human behavior. The paper argues that emotional extraction is intensifying across various technoscientific sites, such as the development of emotionally aware technologies, often for the purposes of predictability. It then offers ways to think about this newly intensifying resource extraction and the intersections of culture, capital, and human experience that such extraction indexes and makes possible. In so doing, the work engages STS by situating the technoscientific approach to emotions so prevalent in our current moment within a broader social and cultural problems and priorities.

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various levels in such initiative. We thus trace how, drawing from qualitative research methodologies (semi-structured interviews, focus groups as well as deliberative sessions), we enrolled a variety of ‘stakeholders’ (from policymakers to heads of local ethics committees, from scientists to patients’ representatives), with the aim of constructing a ‘socially robust’ regulatory platform supporting the development of organoids technologies, in Italy and beyond.

Chair:
Venla Oikkonen, University of Helsinki

329. Questioning Intervention with and within Science and Technology Studies: A Roundtable
Traditional (Closed) Panel
Sheraton Boston: Floor 5 - Riverway
2:00 to 3:30 pm

STS understands science and technology as historically situated practices that embed power relations and values, creating, reproducing and potentially challenging social order. This understanding implies that science and technology could be done differently; create different kinds of order, accentuating, and distributing resources, capacities, and power in different ways. This opens up the possibility of actively seeking to change the course of science and technology—a course made and not found, which can be remade and reordered. Against this background, STS scholars are increasingly seeking not just to deconstruct common understandings of science and technology, but also to generate alternative practices, purposes, governance systems and, ultimately, new knowledge that can direct science and technology, but also to generate alternative practices, purposes, governance systems and, ultimately, new knowledge that can direct science and technology—a course made and not found, which can be remade and reordered.

This understanding was developed and put in place through several decades of scholarship, which can itself be re-articulated as a series of interventions into the intellectual fabric of modern societies. Building on this inversion, we raise and discuss questions such as: What are the conditions of possibility for an interventionist STS? How can the epistemological commitments and methodological resources that make up the STS canon be mobilized in STS interventions, and how do they transform as they move from theory to practice? What is the performativity of STS interventions—in the stabilization of definitions, the creation of technoscientific fields, and the normalization of speculative promises? How does the uptake of STS knowledge in public discourse—for example, via the concept of responsible research and innovation or the diffusion of public engagement exercises—change public consciousness around science and technology?

Intervention Inversions: A framework to understand existing practices
Michael Bernstein, Arizona State University;
Robert David Jonathan Smith, University of Nottingham;
Stefan Schäfer, Institute for Advanced Sustainability Studies;
Shannon Spruit, Delft University of Technology; Eleanor

Hadley Kershaw, Institute for Science & Society, University of Nottingham; sarah Hartley, University Of British Columbia; Rider W Foley, University of Virginia; Richard Rushforth, Northern Arizona University; Philip Boucher, University of Manchester; Andrew Critics, University College London; Lalitha Sundaram, University of Cambridge

We offer a method to map and make sense of existing interventions that occur at the interface between science, technology and society. Such interventions are varying contained under the banner of technology assessment, responsible innovation, action research etc. While such interventions are becoming prevalent, there are few extant attempts to understand their dynamics. The method we present draws attention to five categories of architectural feature: 1) motivations; 2) sites of intervention; 3) necessary and mobilised resources; 4) methods for intervention; 5) the ways that change is envisaged by participants. We envisage this method to be used as a protocol for data elicitation through interview, self-reflection or focus group. By generating a series of systematically produced accounts of intervention, we hope to draw attention to the goals, outcomes and plethora of different strategies that are being enacted in research intervention in and with science, technology and society.

Delivering impact, steering science? Intervening in strategic research policy
Robert David Jonathan Smith, University of Nottingham; sarah Hartley, University Of British Columbia

One of the primary sites that STS scholars have sought, and been sought out, to ‘have an impact’ in has been science policy. Over a roughly three year period, we have been intervening, to operationalise ‘responsible innovation’ in the practices of a major public research funding organisation in the United Kingdom precisely for this reason. Our work has been funded by several so-called ‘impact accelerator awards’, schemes devised by UK public research funders to deliver and demonstrate the value of public research. In order to ‘have an impact’ — to re-construct as well as deconstruct — we have found it necessary to mobilise features of scientific practice that have, elsewhere, been the subject of our own critique. Linear models of research, monodimensional distributions of labour, and technocratic models of governing have all had their place. But what does this mean for the practice of intervention, and for science and technology studies more broadly? How have the objects driving our intervention changed, been relinquished and re-gained? Might it be possible to sense, create and sustain alternative forms of intervention and collaborative work in sites such as science policy?

Science policy and zombie sensibility: Introducing scientists and engineers to science outside the lab
Michael Bernstein, Arizona State University

A dominant sensibility of scientists and engineers is that science discovers, technology applies, people consume, and society benefits. The persistence of this linear narrative, despite repeated and vigorous debunking, recalls to mind a zombie sensibility. Perpetuating itself, virus like, in the minds of young scientists and engineers as they are socialized in the laboratory, vectors of the linear narrative go on to positions of authority across the ecosystem of technoscience and shape the discourse and practices of knowledge-making and doing. This section of our session will introduce an alternative training and education program, Science Outside the Lab, which was developed to render less susceptible to a linear narrative the fertile minds of science and engineering graduate students. The setting of Washington, DC—filled with other related and unrelated undead narratives—provides a powerful macroethics education inoculation for participants. Participants are exposed to the complexities of scientific expertise in science and engineering policy as well as of the actors involved in shaping science policy by speaking with researchers, policy analysts, decision-makers, lobbyists, advocates, and other actors in the technoscience policy.
ecosystem. Program motives, activities, outcomes, resources and fundamental assumptions will be explored, and reflected back in conversation with theory. The performativity of this destabilizing STS intervention, in particular, will be discussed as a means of advancing nuanced, non-linear narratives of rightful places of technoscience in society.

Who is intervening in synthetic biology? Lalitha Sundaram, University of Cambridge

The Arsenic Biosensor Collaboration is a synthetic biology project that seeks to genetically-engineer a bacterium to produce a coloured output in the presence of arsenic—the project’s desired aim is to use this emerging biotechnology to produce a cheap, safe and easy-to-use device or kit to test for the presence of arsenic in well-water in LMICs such as Nepal and Bangladesh. Arsenic in groundwater in this region has been described by the WHO as “the largest mass poisoning of a population in history” and experts have highlighted the unmet need for robust and context-appropriate testing techniques. Given the well-defined area of application—aimed at addressing a global health challenge in South Asia—the project’s team-members found themselves facing a number of “beyond the bench” questions including ethical, societal, cultural and regulatory issues: issues that STS often grapples with. This appears to have resulted in an almost intuitive/amateur application of well-known STS interventionist approaches like CTA and RTTA—though these were rarely framed or named as such. Through this case study, we chart the process of increased attunement and inclusion of RRI issues into this synthetic biology project and examine the role that theoretically-grounded STS knowledge did or did not play. Specifically, we look at how team-members’ responsibilities within the project changed, “from bench-scientist to [amateur] social scientist”. We also briefly consider the narrative that has since emerged surrounding this and other synthetic biology projects on “doing RRI well” or “intervening responsibly”.

Chair: Michael Bernstein, Arizona State University

330. Island Imaginaries: From Repositories to Experimental Labs

Traditional (Closed) Panel

2:00 to 3:30 pm

Sheraton Boston: Floor 5 - The Fens

Particularly in western thought, islands have borne a fascination for “exceptional” ecologies or “remote” human societies and political systems. As repositories conducive not only to evolutionary theories but for theorizing the social, their potential for intervention has equally been an allure. Colonial empires, military logistics, and also philanthropists have turned islands into experimental labs of the natural, technical, and the social. Examples range from nuclear tests to developing genetically engineered crops or testing electrical grid systems in more contemporary times. Bringing together these two island imaginaries—repository and experimental lab—allows exploring how islands and their oceanic environments, in the gaze of outsiders, emerge as sociotechnical imaginaries (Jasanoff & Kim 2015) that constitute both the exceptional Other to be preserved (biodiversity, culture), and synecdoches of the world. This panel examines island imaginaries by inviting research in STS and Other disciplines, such as international relations, geography, indigenous studies, anthropology, and history. The papers aim to query the normative virtue of “original”, “remote”, “untouched” (social and natural) states, as well as the experimental intervention as normalized, unquestioned undertakings of modernity in the distance. We ask how islands are made sense-able through diverse modes of knowledge-making. How do experienced realities of island inhabitants (see Hau’ofa 1993) challenge established accounts of islands? How to account for the heterogeneity that emerges from conflicting imaginations and experiences? Building on recent STS scholarship, the panel seeks conceptual and ethnographic accounts of historical and contemporary cases of islands as technoscientific test beds.

Participants:


Since the country’s independence, Singapore’s government has stressed the limited resources of the island country, and the threats caused by its immediate neighbors. Problematized as a resource-less island isolated in a potentially hostile environment, Singapore was gradually made an experimental site, open for foreign companies to test new technologies for future diffusion in world markets. This paper analyzes the politics of experimentation in Singapore, by focusing on contemporary examples related to technology and finance. Using empirical material based on a collective fieldwork conducted in 2017, it contrasts three experimental formats, whereby Singapore acts as a test-bed for new technologies: the “living laboratory” (i.e. sections of the main island or peripheral islands turned into laboratories), the “simulation” (based on modeling and data collection), and the “regulatory sandbox” (i.e. a virtual space where regulations are softened to ease innovation). We show that using these formats to turn the island’s lack of resources into assets (for external actors as well as for the country itself) requires crucial political interventions so that the technologies and components of the experiments are neatly defined. We discuss the subsequent tension between control and openness that the government of experiments has to face. As it maps onto an opposition between Singapore conceived as a city opened to global flows of people and capitals, and Singapore construed as the outcome of a nation-building project, this tension, we argue, is at the heart of the politics of experimentation, and may offer pathways for alternate imaginaries of the country’s future.

Earth as Island Claire Webb, MIT - Anthropology

Nobel Prize-winning microbiologist Joshua Lederberg’s feasibility studies for NASA in the 1950s and ‘60s used terrestrial cycles of life as templates for imagining “exobiology” beyond Earth. As he wrote in 1964, “Fundamental to all biological theory, exo- or exo- [inner or outer], is the evolutionary principle,” a concept meant to encapsulate cosmic constants from chemogenesis (organic compounds), to biogenesis (organisms), to cognogenesis (culture) (Lederberg 1964). This concept has informed astrobiologists’ approaches today. They now consider Earth to be both one organic entity in a sea tumbling with cosmic jetsam (part of a “heliospheric ecology,” Valerie Olson 2012: 1027) and a planet whose features provide a cosmic yardstick to define possible hosts for life (Helmreich 2006). MIT astronomer Sara Seager uses spectroscopy to analyze candidate planets’ atmospheres in hopes of finding “Earth’s twin” (Seager 2009). To wit, seven newly discovered planets have generated excitement because they might be Earth-like (New York Times, 2017). This paper explores the “Earth as island” concept using archival work of Lederberg’s papers from the National Library of Medicine. Have we earthly biogeochemical signposts—photosynthesis, nitrogen fixation, carbon recycling, and volcanic activity—constructed a potent technical imaginary (Jasanoff & Kim 2015), providing the epistemic mandate for astrobiologists to search for life beyond Earth since the 1950s? To analyze Lederberg’s work, I incorporate feminist epistemology and STS scholarship of technical sensing. How is an anthropocentric objectifying gaze (a “god trick,” Haraway 1988: 581) disused so that astrobiologists like Seager learn how to conceptualize Earth from above, as just one island among many (Seager 2014)? I use feminist epistemology’s sharp criticisms of how science has objectified the Other (Longino 1990, Harding 1991) to analyze how new “technologies of perception” offer up sensuous ways to imagine alien life elsewhere.

From Red Island to Green Island: Cultural and Political Implications of HVDC Cables in Korea Seung Hee Cho, Korea Advanced Institute of Science and Technology (KAIST)

High-voltage direct current (HVDC) infrastructure has received

renewed attention due to its advantages in enabling long distance connections between two different energy systems. In South Korea, HVDC cables connect the Southern coastal area and Jeju Island, each having separate organizations of energy. Considering energy systems as sociotechnical structures, and infrastructure as a set of “cultural artifacts” (Hughes 1993), this paper discusses the meaning of connecting different energy systems and its consequences. HVDC is part of a green initiative in Jeju Island, often labeled as a “carbon-free Island.” In this national plan, Jeju Island is considered for use as a testbed for smart grid and energy experiments. To better understand the reason for selecting Jeju as a testing site, this research reinterprets Jeju’s history of isolation. Despite its image as a paradise or an escape from everyday life, Jeju has long been a politically and economically marginalized region. This isolation has not only been due to geographical factors but also because of a history of suppression of the socialist uprising in the 1940s and 50s. This study investigates the social, political tensions between the Korean mainland and Jeju Island implied by the different organizations of energy. The paper approaches energy infrastructure not simply as a technical production, but as a social and cultural system, both of which can “reinforce existing hierarchies and inequalities” between two locations (Gupta 2015; Mitchell 2013). Based on ethnographic fieldwork, including interviews and participant observation, this paper analyzes the social imaginaries and material relations surrounding new energy infrastructure symbolized by HVDC.

The Hawaiian Islands: Of Island Biogeography, Sustainable Future Imaginaries, and (Other) Lived Sensibilities Mascha Gugganig, Technical University Munich

Many people have been drawn to the Hawaiian Islands, not least since the first Kānaka Maoli (true, real people, or Native Hawaiians) arrived about a thousand years ago. In more recent times, natural scientists in biogeography and biogeochemistry have likewise found interest in Hawai‘i, who conceive of islands as model systems. Over time, the Hawaiian Islands have been constituted as unique natural repository, prone to biotic invasions. Concurrently, they have served as site for numerous experimental interventions: from the industrialization of land to establish the most efficient sugar production industry in the world, to testing Agent Orange prior to the Vietnam War, from developing not yet regulated genetically engineered crops and pesticide combinations to the island of Lana‘i’s Larry Ellison, who lives out his Silicon Valley visions of a sustainable, technologically enhanced future. In this talk, I will bring together these different sociotechnical imaginaries (Jasanoff & Kim 2015) of islands as reservoir and experimental lab in order to interrogate the normative virtue of the former, and the taken-for-granted quality of the latter. I further juxtapose these imaginaries with a different norm of Hawai‘i, that of Kānaka Maoli’s creation story Kumulipo, as well as accounts of islanders’ lived realities and sensibilities, who negotiate and at times resist these normalized, unquestioned forms of natural and social interventions. This paper thus aims to highlight the often-overlooked dimensions of islands across STS and related research by troubling often simplistic or separate conceptions of islands as either exceptional entities or mere replica of global trends.

Chair: Mascha Gugganig, Technical University Munich
Discussant: Rebecca Lemos, History of Science Harvard

331. Coffee Break

Break
3:30 to 4:00 pm
Sheraton Boston: Foyer

332. Tensions and Challenges for Environmental Citizen Science II: Expertise and the State

Traditional (Closed) Panel

4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon A

Citizen science is at the heart of many of today’s environmental controversies. Natural scientists have also shown tremendous interest in involving citizens to generate data, and many people are excited about participating in gamified, crowd-sourced, big data collection. STS scholarship has typically applauded these efforts because they make science more participatory, providing an example of the democratization of science, or, at least, more equitable engagement between experts and the lay public. However, citizen science may or may not produce knowledge that is useful to environmental activists. Additionally, the degree to which citizen science can help communities to address social inequality, rectify environmental injustice, and produce accountability of government and corporate entities varies depending on broader political and social contexts. This panel seeks presentations from scholars who critically examine how citizen science enhances struggles for social change beyond merely generating data through volunteer participation. We are particularly interested in projects that situate dilemmas and tensions in citizen science in the broader context of colonialism, neoliberalization, globalization, and scientization. For example, citizen science can inadvertently facilitate neoliberal budget cuts in environmental monitoring, further reducing government capacity. Likewise, citizen science can accelerate the “scientization” of environmental issues, reducing complex social and ethical challenges to technical matters.

Participants:

Tracking Changes to US Federal Data in a “Post-Truth” World Rebecca Lave, Indiana University Department Of Geography
The current US administration has begun to radically remake not only environmental policy, but also environmental agencies and the scientific information, datasets, and infrastructure they support. STS scholars have written thoughtfully, and often critically, about the complex and contradictory ways in which scientific knowledge claims are mobilized in environmental policy and practice for decades. What is our role now that our analyses of the social construction of science have been co-opted and distorted to paint environmental data as fake and environmental regulation as harmful? The Environmental Data and Governance Initiative (EDGI) is one answer to this question. Founded in November 2016 by a group of STS scholars, EDGI is now an international network of almost 90 social and natural scientists, librarians, lawyers, and coders who work to promote evidence-based policy-making and public interest science. EDGI archives public environmental data, tracks and reports on changes to tens of millions of federal environmental websites, and monitors changes to agency capacities. Taken together our work constitutes a sort of citizen science, as EDGI members and the thousands of volunteers we’ve worked with take on responsibility for the preservation of federal environmental information, data, and scientific infrastructure. In this presentation, I will report and reflect on the simultaneously brash and subtle changes to public information and data availability EDGI has found. For example, our tracking work highlights the multiple modalities that advance climate denialism beyond the mere multiplying of doubt, as website changes clear the way for large scale policy, treaty, and scientific changes.

Gendered Scientization and Citizen Science Aya Hirata Kimura, University of Hawaii

After the Fukushima nuclear accident, many laywomen established citizen radiation measuring organizations (CRMO) to measure the concentration of radioactive materials in food to ensure its safety. These women had diverse motivations to get involved in CRMOs. Many wanted to protect their families as caretakers. In addition, women felt that it was important to arm themselves with science when the broader social discourse portrayed contamination concerns as irrational and harmful to food producers and stereotyped women as overreacting due to their scientific illiteracy. Some women also anticipated the need for an empowered and productive citizen through science, influenced by the currently popular idea of women-in-science. Fluid relationships between scientization and social movements make it particularly illuminating to analyze the boundary-work
333. Racial Mattering and Scientific (In)Sensibilities

**Traditional (Closed) Panel**

4:00 to 5:30 pm  
Sheraton Boston: Floor 3 - Beacon B

The conference theme, “STS (In)Sensibilities,” invites us to consider the production of scientific knowledge, both empirical and critical, at the level of the sensorium. To ask, in what ways does sensitization precede investigation and knowledge-production? From Donna Haraway’s early work on primates to Anna Tsing’s work on geopolitical “frictions” to Alondra Nelson’s ‘Social Life of DNA,’ anti-racist, feminist STS scholars have been engaged in tracing the racialized and colonial sensibilities central to the production of scientific knowledge, demonstrating that racist sensibilities have shaped the history and meaning of scientific fact. Deepening these insights, this session seeks to place researchers and reality on the same plane – coeval and co-constituting – by asking not simply how racial sensitization structures knowledge of reality, but how racialization structures both scientific sensibility and reality. Through individual case studies, the panelists argue that race is not only an element of the researcher’s sensorium (something she can train or think herself out of) but also materialized within matter itself. Scientific investigation, then, is itself a training of the racial sensorium of the scholar in part because it opens her to the materialization of race – its factualization. In doing so, this session asks, how is the very substance of the factual and the empirical materialized by race and what forms of sensibility are needed to attend to this mattering? If race is installed within matter as matter itself, then how does critical attention to racial mattering require a retraining of scientific (in)abilities?

**Participants:**

**Ape Motherhood as Counter-Science in a Colonial Home:**  
Rehabilitating orangutans entails training orphaned and displaced orangutans to live as semi-wild orangutans in sanctuaries. The idea began as a form of “ape motherhood,” which was an experiment of freedom in the midst of active debates around decolonization. “Ape motherhood” was a queer practice of trans-species life at the peripheries of science. Embodying ape motherhood for Barbara Harrison entailed embodying another kind of gender, one opposed to both colonial motherhood and a universal sense of human nurturing, one situated in the jungles of Borneo and in a homemade laboratory in a colonial bungalow far from the centers of scientific knowledge production. This paper is based on archival and ethnographic research in Sarawak between 2008-2016. It builds on feminist STS literatures on care, colonial knowledge production, fieldwork, as well as diversity and relations across species to argue that the adoption of scientific instruments and measurements in the colonial home of Barbara Harrison rooted her experimentation not in the world of gentlymanly science from which her husband Tom Harrisson came, nor in the bourgeois world of homemaking and home economics, but rather in an alternative world-making project akin to colonial civic science (Weiss 1977; Haraway 1989; Stoler 2002; Fortun and Fortun 2005; Anderson 2006; Kirksey and Helmreich 2010; von Oertzen, Rentetzii, and Watkins 2013; Subramaniam 2014; Martin, Myers, and Vises 2015; Murphy 2015).

**Sense of Things: Zoonosis, Xenotransplantation, and the Mattering of Race in Nalo Hopkinson’s ‘Brown Girl in the Ring’**  
Zakiyyah Iman Jackson, George Mason University  
An inquiry into onto-epistemology, this presentation investigates the reciprocal production of aesthetic and empiricism, both seemingly scientific and the perceptual knowledge that signifies otherwise under conditions of imperial Western humanism. In a reading of depictions of zoornosis and xenotransplantation in Nalo Hopkinson’s ‘Brown Girl in the Ring’ (1998), I argue that as an enabling condition of imperial Western humanism, the black mater(nal) is foreclosed by the dialectics of hegemonic common sense and that the anxieties stimulated by related signifiers, such as the black(ed) maternal image, voice, and lifeworld, allude to the latent symbolic-material capacities of the black mater(nal), as mater, as matter, to destabilize or even rupture the reigning order of representation that grounds the thought-being relation and secures racial capitalist economies of exchange and value that we term “tissue economies.” Exploring the mind-body-social nexus in Hopkinson’s fiction, I contend that in Brown Girl vertigo is evoked both as a symptom and a metaphor of inhabiting a reality discredited (a blackened reality) that is at once the experience of the carceral and the apprehension of a radically redistributed sensorium. I argue the black mater(nal) holds the potential to transform the terms of reality and feeling, therefore rewriting the conditions of possibility of the empirical and of value itself.

**HIV is Racist**  
Adam M Geary, University of Arizona  
A popular slogan of AIDS social activism has been, “HIV doesn’t discriminate.” And yet, how else do we describe the distribution of disease and suffering in the world? If HIV doesn’t discriminate, then how is one to understand that in the US, nearly 50% of all people living with HIV, who have died from HIV, and are infected with HIV each year are black, or that the black peoples of Sub-Saharan Africa and the Caribbean remain the other epicenters of the global pandemic? It seems like HIV does...
discriminate, and that it’s an antiblack racist. In this paper, I use this seeming nonsense about a virus with racist motivation as a point of departure for thinking through the racist matrix through which HIV emerges as an object for thought and experience. While dominant, biomedical accounts of disease epidemic repeat racist tropes of risky behaviors and cultures to explain disease distribution, social epidemiology and other materialist health sciences argue for shifting attention to conditions of vulnerability and the social relations that structure those conditions. In this latter model, antiblack racism emerges as the ideological and institutional matrix through which black peoples come to bear the burden of illness and death. Where does this leave the concept of a virus, HIV? Bringing together Karen Barad’s injunction to attend to “things-in-phenomena” with psychoanalytical accounts of an object, I suggest that HIV is a materialization of antiblackness. While AIDS discourses are racist, so is HIV.

Medusa, Colonial Racism, and Coral Bleaching Eva Hayward, University of Arizona

Corals are among the largest living organisms, containing the most diverse ecosystems on the planet, and serving as global sources of carbon and nitrogen fixation (conversion). Changes in water temperature, seawater salinity, and overexposure of toxicity have resulted in coral bleaching, the expelling of photosynthetic zoanthallae (plant-based parts of coral), which result in the starving of the animal. In January 5, 2017, the United Nations Environment Program reported the probable extinction of corals within 50 years. Focused on coral bleaching, this paper turns to Ranjana Khanna’s provocation that Freud’s psychoanalytic figure of Medusa (the mythic gorgone whose blood bound with seaweed to create corals—members of the phylum Cnidaria are still named after her—and gave the “Red Sea” its name) describes not only the threat of sexual difference, but also racial difference (Dark Continents: Psychoanalysis and Colonialism, 2003). In describing colonization, Khanna argues that the threat of castration is marked equally by the position of women (what Freud referred to as “a dark continent”) and Africa (the colonial context of Freud’s psychoanalysis). Freud’s conflation of “primitivism” with women reveals not just the racial unconscious of psychoanalysis, but also how the colonial scene served as both “the threat of castration by the terrifying Medusa that is Africa” and its disavowal through racial violence. This paper asks: How might we conceptualize coral bleaching as an effect of colonial racism? What is the position of racial/sexual difference in ecological catastrophe? Can psychoanalysis augment and complicate environmental discourse?

Analyzing “race” as a scientific object: circulating “race” through time (1927-1970) and space (Berlin-Pune) Thiago Pinto Barbosa, Leibniz-Zentrum Moderner Orient

My research project explores how “race”, as a scientific object, has been scientifically produced and transformed through circulations in time and space. The analysis sheds light on one important transnational flow in the global network of racialized knowledge production, namely the one through the work of physical anthropologist and geneticist Inwati Karvé (1905-1970) between Berlin and different settings in India. In the late 1920s and early 1930s, Karvé researched at the renowned Kaiser Wilhelm Institute for Anthropology, Human Heredity and Eugenics (KWI-A) in Berlin, where she developed a research on “racial difference” under supervision of leading Rassenhygiene expert and anthropologist Eugen Fischer. From 1931 to 1970, Karvé played a key role in the adaptation of racialized knowledge to different settings in India, becoming notably known for her anthropometric studies of different social groups in India, such as certain “sub-castes”, “tribes” and other “populations”. Backed by multi-archival research in the context of an ongoing larger ethnographic research, in this paper I analyze Karvé’s racialized knowledge production praxis and situatedness. Through a postcolonial STS perspective, I focus on Karvé’s praxis in Berlin, and articulate it with an analysis of how, from such praxis on, she has articulated and transformed the object of “race” throughout her scientific work. I argue that Karvé has contributed to a racialized understanding of human difference also in a later context (1950-1970) and how the category “race” itself had not been made explicit anymore in her work. Hence, my paper contributes to a critical understanding of the transformation of “race” as a scientific object and to a critical historical understanding of racialized notions in physical anthropological and/or human genetic research. In this sense, I strive to contribute to STS scholarship with a different gaze towards the history of the discipline of anthropology itself and with a reflection on the presence of “race” in the production of knowledge on human diversity.

Chairs:
Eva Hayward, University of Arizona
Adam M Geary, University of Arizona

334. Can the Subaltern Research? III
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon D

This panel questions research on ‘the subaltern’ by focusing on processes whereby established theory can reinscribe acts of domination and erasure of options, in a variation on Spivak’s query, “Can the Subaltern Speak?” (1988). We point out three possible entry points: 1) The subaltern researcher. Xavier Polanco (1985) used the expression “domestic brain drain” to identify “a cognitive position assumed by Third World and Latin American scientists, who without emigrating from their countries guide their scientific work in terms of research fronts, reward systems and publication of developed countries.” The ambivalences between simultaneously copying and rejecting the models of European civilization often lead subaltern colonized-colonizers who are approaching modernity to a hindrance. 2) Dialogue with the subaltern. A second entry point comes at the intersection of two seemingly accepted claims within the STS community: “science is capable of dialogue only on its own terms,” and “a respectful enough story is all one needs to go to trial with.” The first will require that subaltern claims to knowledge be expressed and subjected to evaluation following scientific practices. On the second, “respectful enough” means producing a set of inscriptions which, by means of their juxtaposition, stabilize the story as an entity, that is, as something formed by a detachment from of the flux of (an ever moving) reality. 3) Conflicts and limits of authority. A third entry point would be any situation where there is a conflict between the authority of scientific knowledge or fact and the authority of a local popular non-expert knowledge that scientists classify as “mere belief.” On the one hand, the (colonizer) scientist, engineer or project manager is clearly privileged in determining the scientific or technological reality of what is at stake. On the other hand, subalterns may resist and evade the definition of their reality by others in numerous and sometimes quite effective ways. The panel thus welcomes any research that investigates the stakes and dynamics in such encounters between expert and subaltern knowledges and realities.

Participants:
Whose Knowledge of Nature Counts in Courts of Law in Chile and Colombia? Javiera Barandiaran, University of California, Santa Barbara

Communities worldwide have gained the right to participate in the review and licensing of extractive projects that might affect them. In Latin America, indigenous and non-indigenous communities are increasingly using these rights to block or significantly alter such projects, often pursuing cases in the courts if they feel their rights to participate or live in a clean environment are being violated. In the process, courts have become major actors in environmental politics, as judges must weigh community claims against scientific information produced by the companies involved in extraction. Based on an analysis of court verdicts in Chile and Colombia, this article identifies the strategies judges use to decide whose claims about nature count in a court of law. Litigation of environmental licensing is ideal for this inquiry because licensing (typically done through an environmental impact assessment or EIA) has become a ubiquitous policy and a site of conflict, as marginalized communities use the rights and opportunities created by licensing to contest dominant economic interests and/or promote their own
goals. Knowledge of nature in EIAs is particularly contested as it pits companies and their well-paid scientists against aggrieved communities, some of which are indigenous, and interested NGOs. This article fills a gap in the literature by examining licensing litigation outside the United States, thus advancing understanding of how Chilean and Colombian actors draw boundaries around “local,” “indigenous,” “place-based” or “scientific” knowledge, with consequences for cultural and legal notions of environmental harm and precaution.

Subaltern Research on Emission Standards to Abate Arsenic Pollution Cecilia Ibarra, Universidad de Chile
Chile is one of the few countries in the world challenged by arsenic pollution control. Arsenic derives from natural volcanic activity in the Andes mountains and from anthropogenic sources - copper mining and smelting activities, which are fundamental to Chilean’s economy. Arsenic affects water, air and soils, and human exposure if it relates to cancer diseases. Abatement began in the 1970s with water treatment plants, to remove arsenic from contaminated waters, and regulation for drinking water standards. Epidemiological studies carried out during the 1980s and 1990s showed higher rates of cancer in the zones with higher exposure to arsenic. In the 1990s, public health concerns on arsenic pollution coupled with economic threats to Chilean copper exports based on environmental standards. Regulation was urgent; it should reduce health impacts and impose feasible abatement measures. The high levels of arsenic unique to Chile and the economic consequences of mitigation did not allow copying standards applied in other countries. There was need for intense local research on health effects, emissions and contamination levels, control technologies and related costs. This study focuses on researchers’ experiences and career impact after taking part in a research project to provide evidence for arsenic regulation in Chile. Results show high commitment and satisfaction from relevance to the country, and multiple tensions derived from dialogue and validating results from a subaltern position, pressures from interested parts, tensions with the university assessment system, and stress for results being scrutinized by international experts.

“The Revolution Will Come from the Slum”: Subaltern Views for Social Changes Narrira Souza, Universidade Federal de Goiás
The Social Culture Center in Vila Isabel, Rio de Janeiro, is situated near the favela (slum) and works with social activities for its residents. Among the social activities there are classes for young and adults who intend to get the Sat's test, the classes are offered by volunteers. It is, therefore, a space of service to the community that is at the margin/boundary of society. Who is the subaltern in this situation? This is not a hard question, however, it should be a pertinent question between Latin American researchers who deal with social exclusion, and in a critical sense, especially to look to the theory(ies) that are going to be used. Inequalities permeate academic communities, but are also involved in a complex construction of world and local hierarchy, that may work both ways. To the production of this paper, it was done local research among the Social Culture Center, some interviews with people that work voluntarily and participate of the activities, and bibliographic research with focus in questions of the turned of 2000 in Latin America, and particularly, with Brazilians theorists. It was explored (1) how the people that work there met the place, (2) how they deal with technology and globalizations and (3) their own way of production of knowledge. The result was not only a paper but a short movie with some interviews.

Participants:

Unbreathable: The Absence of Air in Asthma Treatment Ali Kenner, Drexel University
Since the nineteenth century, research on the causes and potential cures for asthma have predominantly focused on matter inside the body, at increasingly smaller scales – such as the immune system and, more recently, molecular genetics. While biomedical paradigms supply asthmatics with pharmaceutical treatments that are effective in many cases, patients and caregivers can readily identify limitations and outright failures in standard approaches. Patients’ concern with biomedical treatment is situated in the gap between everyday experiences and interactions in the clinic; this gap, I argue, stems from the absence of “air” in biomedical approaches to asthma. My study shows that asthmatics rely on a broad range of care practices, many of which aim to reduce dependence on pharmaceuticals by relying on environmental and somatic knowledge, or what I call “asthmatic attention” to air. In this paper, I show how dominant asthma paradigms erase the very material at hand – not just the air we breathe, but also how we breathe. Attention to air’s erasure in asthma paradigms stems from the work of Buteyko breathing educators, a community of practitioners that position air as a key factor in disease understanding and care. Characterized as an embodied health movement (Brown et al., 2004), Buteyko breathing educators work to bring air and breathing mechanisms into mainstream asthma care by engaging scientific discourse on the biological body and collaborating with medical professionals to bring attention and legitimacy to respiratory processes. This paper draws on data and analyses from an eight year, multi-sited study of U.S. asthma care that includes more than 60 in-depth interviews and participant observation at scientific conferences, clinics, and public meetings.

From Shale Gas Revolution to Nothing at all: The Case from Poland Agata Stasik, Kozminski University; Aleksandra Lis, Central European University in Budapest
This paper aims to explore a short history of the making and un-making of shale gas in Poland by examining how actors devised two technologies in order to induce political and economic action around it. First, we examine the use of the “technology of promise” and we show how governmental officials and experts made shale gas into “something” through mapping, visualization and comparison of the existing data on shale gas in Poland. In this form, shale gas became inscribed into narratives about visions of the (geo)political future of the country and the region, and started to shape these visions. This worked as an additional stabilising device that added “reality” to the promise. Second, we show how business actors and experts, in order to be able to act
upon the Polish shale gas in an economic way, strived to give “more reality” to shale gas in Poland through the "technology of assessment" of the economic viability of the resource. This relied on a mixture of engineering/geological technologies and economic calculations. Technologies of hydraulic fracturing used in Poland proved to be inadequate for the Polish shale gas formations, and the lack of new data on the availability of shale gas resources in Poland, as well as low prices of oil on global markets, resulted in the assessment stating that, at that moment, there was no economically viable shale gas in Poland. The analysis is based on media reports, document analysis and interviews. We conclude that while the "technology of promise" worked well to give political traction to shale gas development in Poland, it was not enough to turn Polish shale gas into an economic thing. The “technology of assessment” was needed for that end, but its use turned Polish shale gas turned it into "nothing".

‘Nothing to See Here’ – An Ethnography of Absence at the European Spallation Source Ivanche Dimitrievski, Linköping University, Tema-T (Tema Technology and Social Change) Absence is a central yet little examined notion in STS studies of future orientation. Following on the assumption that ‘the future’ is always already absent from the present – i.e. ‘not here yet’ – these studies focus mainly on the discursive procedures by which ‘the future’ is imported in the now and thereby on its role in shaping emerging science and technology (e.g. Ruivenkamp & Rip, 2014). This paper explores how ‘the future’ is made absent in the first place and the practical significance of maintaining it as such in specific situations. To this end, it reports an ethnographic study of the European Spallation Source – a widely proclaimed ‘future big science facility’ for research using neutron scattering, currently under construction in Lund, Sweden. The notion of absence is topicalised at different instances in this ethnographic work, often in reference to specific empirical occasions (e.g. ‘there’s nothing to see here’) and sometimes as a methodological problem (e.g. ‘there’s nothing to study’). What practical considerations feed into the making of ‘nothingness’ in these cases? How does ‘nothingness’ get coordinated and maintained across sites? What kinds of ‘futures’ do specific constructs of ‘nothingness’ evoke? Drawing on participant observation, interviews and document analysis, this paper casts light on the relationship between absence and presence in the context of emerging big science.

Trading in the Mystery of Commodities Susanne Freidberg, Dartmouth College Between farm and supermarket shelf, a small number of very large companies control much of the storage, shipping, trade and processing of the world’s staple food and feed supply. As longtime family businesses, these companies are known for their secrecy and privileged access to insider information, and the market power this ‘intelligence’ affords them. Yet they know remarkably little about where and how their raw materials are produced. Drawing on STS work in agnotology, this paper shows how commodity traders’ fortunes have historically depended as much on ignorance as knowledge. Drawing on ongoing ethnographic research, the paper shows how this history complicates the broader food industry’s technopolitical efforts to improve “sustainability” by way of traceability.

Chair:
Christy Spackman, Harvey Mudd College

Discussant:
Jennifer Croissant, University Of Arizona

336. Sense and Nonsense in Modern Mathematics

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon F

This open panel seeks submissions on the history, sociology, and cultural studies of modern mathematics that explore how changing forms of abstract and theoretical knowledge have related to changing material and sensory means of making sense of such knowledge. Modern mathematics features a diverse range of cognitive sensibilities, images, and embodied practices for creating and coming to agreement about facts and conclusions that can often seem distant from or independent of mathematicians' physical worlds and social contexts. Mathematicians decide what is valid, suggestive, promising, meaningful, or useful through a wide variety of interactions susceptible to investigation, from personal discussions in offices or in front of blackboards to presentations in lecture halls to long-distance theory-work through letters, articles, and digital platforms. These interactions make potentially nonsensical flurries of signs and figures into meaningful mathematics. By tracing the seam joining sense-work and sense-making for apparently non-sensical or para-sensical intellectual formations, contributions to this panel should situate mathematical ideas in its emerging big science.

Participants:
Discovery Work: Opening Up the Black Box of Mathematical Reasoning Christian Greiffenhagen, The Chinese University of Hong Kong

In this paper, I present my analysis of the first steps of researchers in mathematical logic toward the development of a mathematical proof. As with many doctoral projects in the natural/mathematical sciences, it was the supervisor who proposed the thesis topic, which consists in a generalisation of a theorem that he has already established. The theorem has been proven for rational numbers, but not yet for irrational. To prove the theorem in this more generalised form is part of the doctoral project. The supervisor regards the task as a bit of ‘normal’ mathematics, an exercise in puzzle solving rather than boundary shifting. He is confident, but not wholly so, that a proof can be given, but does not know at the outset whether the new proof can be given just by ‘adapting’ the existing proof, or whether some additional – and new – trick will be needed. The analysis is based on video recordings of the weekly supervision meetings between supervisor and doctoral student (these records allow us to see how their conjectures developed as they worked on their problem, a ‘real-time’ Lakatos if you will). I examine the mathematical puzzlement that they attempt to address and resolve through discussion at the blackboard, with an aim to specify the notion of ‘rigour’ with which their work is conducted. The course of their reasoning is not by any means ‘arbitrary’ but neither is it ‘logical’ in a formalist sense. In this sense we will show the stepwise, logical, but non-formalist character of their workings.

The Practice of Postulates in American Mathematics, 1900-1930 Ellen Abrams, Cornell University

Mathematicians’ attempts to agree upon a set of agreed-upon assumptions, or axioms, in the early twentieth century elicited profound ontological and epistemological questions: what are they and how can we know them? A group of American mathematicians, however, effectively sidestepped these questions by asking instead how combinations of axioms, whatever they are and however we know them, fit together. Their goal was to mathematically describe and explore relationships between and among axioms, regardless of their content. In a way these mathematicians, later named the American Postulate Theorists, sought to make sense of, by mathematizing, mathematics, even if it was grounded in nonsense. In this paper I consider the treatment of postulates as its own mathematical project. How did Postulate Theory help mathematicians make sense out of nonsense? What did the use of postulates, as opposed to axioms, signal about their work? Postulate Theorists were among the first generations of mathematicians to be trained in the United States. How did this institutionally-dispersed group of mathematicians develop common practices and how did they engage with their counterparts overseas? How did Postulate Theory relate to and define the practices of the American mathematical community more broadly? The who, what, and how of American Postulate
Theory demonstrates that through practices and cultures we can better understand both the production of mathematics and the production of mathematical identity.

NP- Promises: Consensus, Conjecture, and the P vs. NP Problem
Since 1960 Tasha Schoenestein, Harvard University
In 1971, Steven Cook published the first clear articulation of the P vs. NP problem, the central open problem of theoretical computer science and one of the Clay Millennium Prize problems. The problem asks whether the class, NP, of problems whose solution can be quickly verified is equal to the class, P, of problems whose solution can be quickly found. By 1979, textbook writers were willing to assert that “most researchers” working in theoretical computer science would “conjecture that the NP-complete problems are all intractable” (Garey & Johnson, 1979). In other words, within eight years of the problem’s first formal definition, despite the absence of a formal—and necessary—mathematical proof, the discipline had already come to the consensus that P is not equal to NP. Although members of the community provided mathematically grounded reasons that P was probably not equal to NP, those reasons were not sufficient to explain the pervasiveness or relative strength of this consensus. What aspects of mathematical culture created the context for such widely held belief without the evidence required for official consensus? I will examine how the P vs. NP question became important to the community of theoretical computer scientists, how a consensus developed around a conjectured answer to the question, and how the community continued to justify their beliefs about the problem in the face of uncertainty.

By examining the history of a particular mathematical conjecture, I will address wider questions about the role of evidence and “intuition” in mathematics.

Abstracts, Abstraction, and the Senses of Modern Intercontinental Mathematics Michael Barany, Dartmouth College
In the late nineteenth and early twentieth century, systematic scientific abstracting played a crucial role in reconfiguring the sciences on an international scale. Beginning in the 1930s and accelerating with the 1940 launch of the American journal Mathematical Reviews, such abstracting activities helped to create a fundamental transformation, I shall argue, not just to the geographic scale of professional mathematics but to the very nature of mathematicians research and theories. It was not an accident that mathematical abstracting in this period coincided with an embrace across mathematical research fields of a distinctive form of symbolic and conceptual abstraction. Using archival sources and information from the online databases of Mathematical Reviews (MathSciNet) and the Zentralblatt für Mathematik (zbMATH), I shall examine the conjoined embodied and conceptual bases of mathematical abstracting and abstraction in the 1940s and 1950s, placing them in historical context within the first half of the twentieth century. My analysis will emphasize two interconnected forms of sense-making that found new significance for mathematicians during that period: establishing terms and concepts with a particular “sense” (that is, theoretical framework), and determining that such terms or concepts “are sensible,” “make sense,” or “have a sense.” Abstraction and abstracting practices mutually emphasized this dual kind of sense-making by requiring certain forms of categorization, summary, allusion, and justification while foreclosing others.

Chair: Michael Barany, Dartmouth College
Discussant: Michael Lynch, Cornell Univ.

Participants:
Researching the Auscultation of Traditional Chinese Medicine from the Perspective of Local Knowledge Jiushu Xu, Tsinghua University
This research studies the auscultation of TCM and explains its history, theoretical system, status quo, and significance. On this basis, this research interprets the practice of auscultation as the local knowledge from the view of philosophy of scientific practice. Because of this, the criticism and rethink about the scientific research of auscultation be stated. Auscultation of TCM does not need the validation and proof by science. Inspection, auscultation, inquiry and pulse palpation are four diagnostic methods in Traditional Chinese Medicine (TCM). Among them, auscultation (闻诊 WenZhen) is an extraordinary method which bases on listening the five notes (宫、商、角、徵、羽 - Do Re Mi Sol La) to diagnose and match sounds to the five internal organs (heart, liver, spleen, lungs and kidneys) in TCM according to the Wuyin theory (五音理论).

Translation and Negotiation of Complementary Medicine in the European Union Jenny-Ann Brodin Danell, Umeå university, Department of Sociology
This paper focus on how complementary and alternative medicine (CAM) is translated and negotiated in the European commission, and the role of scientific knowledge and evidence based medicine in these processes. A number of studies show that CAM is a growing research field, both concerning studies of use/prevalence, clinical effects, RCT:s, and preclinical studies. However, this development does not necessarily implicate that the research is accepted, acknowledged, or applied. In general, CAM-research is often questioned, on the grounds of poor research design and small numbers. There are also indications that CAM-research is often controversial and contested. This panel is devoted to STS perspectives on CAM, for example, concerning knowledge production, organization, professionalization, standardization, globalization, and material practices. The panel is open to qualitative, quantitative, as well as theoretical papers.

337. Science and Technology Perspectives on Complementary and Alternative Medicine
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon G
Complementary and alternative medicine (CAM) has not only become increasingly popular and frequently used by the general population in western societies, it is also field of scientific research and professionalization and integration in conventional health care. CAM is also developing as a scientific (sub) field, in terms of peer-reviewed articles, clinical trials, and establishment of CAM journals, research centers and other scientific forums. However, none of these processes are straightforward or without conflicts. The medical and scientific legitimacy of CAM is often controversial and contested. This panel is devoted to STS perspectives on CAM, for example, concerning knowledge production, organization, professionalization, standardization, globalization, and material practices. The panel is open to qualitative, quantitative, as well as theoretical papers.
processes? The empirical material consists of about 150 documents, such as reports, newsletters, directives, decisions, mainly dealing with CAM in relation to public health and EU as an internal market. The material is analyzed with help from an actor network approach.

What’s in a Name? A Boundary Work Analysis of the Controversy over University Homeopathy Education

Elizabeth Caldwell, University of Huddersfield

Between 1999 and 2009, a number of UK universities taught Bachelor of Science (BSc) degrees in homeopathy, in response to the growing popularity of complementary and alternative medicine (CAM) and concerns about standards of training for non-medically qualified practitioners. However, a number of prominent scientists launched a vigorous campaign in the media against the degrees, resulting in their closure. This paper presents a thematic analysis of the boundary work carried out by campaigners, from 65 articles published in UK print media between 1998 and 2015. The data show that a number of rhetorical strategies were used to denigrate homeopathy degrees and designate them as non-science, such as associating them with profit, religion and magic. In contrast to previous debates about CAM, one important strategy in the boundary work was a focus on the scientific implausibility of the extreme dilutions used to make homeopathic medicines. This spotlight on scientific legitimacy proved to be a decisive strategy in rendering homeopathy as non-science and therefore not eligible for inclusion in BSc programmes. The subsequent expulsion of homeopathy from the academy has had profound implications for the position of CAM in British society, as both accreditation of CAM therapies and statutory regulation are now bound not only to clinical legitimacy but also to scientific credibility. This case demonstrates that boundary work can be carried out not only to protect science from outside influence, but it may also be used to intercede in the affairs of other allied professions, in this case medicine.

Chair: Jenny-Ann Brodin Danell, Umeå university, Department of Sociology

338. Algorithms in/of Culture: Exploring the Global Reach of Algorithms

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Beacon H

Algorithms – loosely defined as a set of rules to direct the behavior of machines or humans – have shaped infrastructures, practices, and daily lives around the world. This panel explores the implications of algorithms from an STS perspective, guided by these questions: (1) The multiple lives around the world. This panel explores the implications of algorithms as myth, narrative, ideology, discourse, or power? How can these approaches contribute back to computer and data science? (2) Algorithms as more than computation: What does it mean to study algorithms as myth, narrative, ideology, discourse, or power? How can these approaches contribute back to computer and data science? (3) Algorithms as specifically computational: What are the social and theoretical implications of new developments in computation such as big data, deep neural networks, distributed computing, or ‘microwork’? (4) Practices and materialities of algorithms: Just as science studies advocates for a focus on the local practices and material artifacts which produce and sustain scientific knowledge, what kinds of work is done to make algorithms computable, and what are the material effects of algorithms? (5) Living with algorithms, quantifying the self: Algorithms pervade daily life and we experience their impact almost anywhere, not just at a computer. How can we better understand how far-flung domains are being reshaped by algorithms, and what are the implications in everyday and civic life? Participants:

Seeing Like an Algorithm: Machine Learning and the New Division of Apperceptive Labor

Thomas Gilbert

This paper argues that machine learning comprises an emergent form of labor, drawing on classic theorists of political economy who saw the division of labor as the key explanatory mechanism for the self’s formation, whether as a realization of our natural desire to trade (Smith), a source of alienation (Marx), or providing new conditions for solidarity (Durkheim). Deploying the grammar of Kantian epistemology, I present a theory of the division of apperceptive labor to account for how an AI sees (and recreates) the social world. This framework is useful for understanding how an AI’s perception of reality is synthesized from the specific sources of information (Big Data), programming (whether deep learning or Bayesian inference), and goals assigned to it by markets or governments. We should theorize algorithms neither as instruments of organizational power nor as a new technology of the disciplined self, but instead as distinct social agents whose apperception is digital rather than phenomenological. This suggests a more specific and empirically tractable research agenda: how is the division of apperceptive labor shifting as algorithms reconstruct the social order? I finally suggest domains for empirical investigation, including stronger narrative emphasis on: (1) the germination of representations of social reality implicit in algorithms; (2) how those representations depend on an apperceptive harmonization between external databanks and their own internal systems of classification; (3) the political schema organizations use to achieve this harmonization by deciding when, where, and to what ends a given algorithm is permitted to construct social objects of interest.

Understanding Perception of Algorithmic Decisions: The Case of Algorithmic Management

Min Kyung Lee, Carnegie Mellon University

Algorithms increasingly make managerial decisions in diverse workplaces, such as selecting top job applicants, scheduling worker shifts, and determining which employees to promote. Perceptions of algorithms, regardless of the algorithms’ actual performance, can significantly influence attitudes towards and cooperation with these algorithmic decisions. Yet, to our knowledge, this phenomenon remains largely unexplored. To explore perceptions of algorithmic management, we conducted an online experiment to examine people’s perceptions of four managerial decisions that required either mechanical or human skills. We manipulated the decision-maker (algorithmic or human), and measured perceived fairness, trust, and emotional response. With the tasks that required mechanical skills, algorithmic and human-made decisions were perceived as equally fair and trustworthy and evoked similar emotions. With the tasks that required human skills, algorithmic decisions were perceived as less fair and trustworthy and evoked more negative emotion than human decisions. This work suggests that understanding everyday people’s perceptions is important and task characteristics need to be considered in understanding people’s experiences with algorithmic technologies. The findings contribute to science and technology study by broadening our understanding on folk theories of algorithmic technologies.

Constitutions of the Human in the Digital Age, Then and Now

Margarita Boenig-Liptsin, Harvard STS

In the early 1970s, pioneers of an alternative approach to the use of computers in education called for making the knowledge of how to program, use, and think with, or even like, the computer a basic skill of the general population. This new approach was called “computer literacy” in English and also referred to as literacy and form of “algorithmic thinking” in Russian. In French it was referred to as a new culture (culture informatique). Despite the differences in the skills, knowledge, and sensibilities implied by these terms and as practiced in each country, each variant of the new culture of literacy presumed that the computer had to reconstitute the human—to become part of a person’s cognitive and bodily habits and, by doing so, suffuse that person’s sense of self, her values and ways of relating to and living with others. Extending STS work on constitutionalism (Jasanoff 2003; 2011), I ask: how did the acquisition of technical knowledge of working
with computers shape an (altered) idea of the human being as subject and citizen in the United States, France, and Soviet Union? How do these historical perspectives compare with contemporary analysis of the "data subject" or "algorithmic self" (Pasquale 2015), and with what consequences? I situate my analysis of the constitutions of the human in the digital age, then and now, in broader thought on citizenship and democracy by engaging with the work of political theorists, particularly Danielle Allen, Wendy Brown, Yaron Ezrahi, and Charles Taylor.

Fetishization Revisited: Faith and Notions of Efficacy in the Making of Algorithms

Dawn Nafus, Intel; Suzanne L. Thomas, Intel Labs; Jamie Sherman, Intel Labs

Algorithms, in recent years, have become a catchword: a focus of academic fascination, a rarified artifact that commands extraordinarily high salaries for those who make them, and "a magic black box" for those who use them. They order news feeds, turn on heaters, and optimize fitness. To explain these near magical powers of algorithms, this paper turns to scholarship of fetishes. Fetishes are not indications of "false thinking," but instead are "good to think with." Fetishization, and denouncing accusations of fetishization, occur at particular historical junctures where misrecognizing the agency of human encounters, and investing efficacy and power in an object instead, does important cultural work. Fetishes, be they algorithms or data, act as promises that animate our material worlds when social contracts between people are too slippery or nascent to address directly. This paper will explore these ideas through ethnographic fieldwork with Quantified Self participants and computer vision professionals, where claims about scientific efficacy mingle with faith and hope, alongside occasional accusations of false thinking. Like the artifacts of colonial trade in West Africa, algorithms and data facilitate social exchange in circumstances where shared understandings are thin on the ground. Following David Graeber, the paper argues that fetishization is not the same cultural logic as deification or demonization, which constitute perhaps more profound risks of algorithmic culture.

Law: Intellectual Property and Software in the United States

Gerardo Con Diaz, University of California, Davis (UCD)

This paper uses the history of software intellectual property law to reflect on a fundamental and surprisingly complex question: what is software? I argue that the American computing industry’s engagement with the country’s intellectual property system from the 1950s to the 1970s shaped the emergence of software as a new technology, property, and invention. Indeed, as software makers started to rely on patent and copyright law, they found themselves creating and negotiating their own conceptions of the nature of software as a technology. These conceptions, each of which I term an “ontology of software,” were grounded not just on their proponents’ personal views on the characteristics of software as an invention, but also on the short- and long-term legal and business strategies of their firms. My argument shows how the use of law as a category of analysis can reveal deep connections between the political economy of the computing industry and the discursive and legal emergence of its products as distinct entities. The talk advances a comparative analysis of software intellectual property at Bell Telephone Laboratories, Applied Data Research, and International Business Machines. These firms represent three of the major kinds of firms that comprised the computing industry at the time—respectively, an industrial research laboratory, a software house, and a hardware manufacturer. I conclude with an invitation for further study of the history of software law beyond intellectual property.

Identity: Transgender Users and the Hacking of the British Welfare State

Marie Hicks, University of Wisconsin-Madison

Following World War II, Britain set up an expansive welfare state. To manage the complexities of millions of accounts of citizens in the new system the government employed massive electronic computer installations. The largest was in the Ministry of Pensions. From the 1950s through the 1970s hundreds of transgender citizens wrote to the Ministry asking for the gender on their pension cards to be changed. In an era when women were still paid far less than men for the same work, many trans men had paid into the system much more than they were allowed to draw out. Ministry officials tried to accommodate, with temporary hacks to alter payment amounts in the computer on a case-by-case basis. They stated that changing the gender on people’s pension cards was unnecessary because the computer did not “see gender”—only numbers. But behind closed doors government officials wrote they would not legitimate trans people—whom they considered “perverts”—by changing the gender on their cards. This paper explores how hacking can be used by governments to avoid recognizing the civil rights claims of a class of citizens. Within the growing 20th century technocratic state, computerization was often used to hide the politics inherent in technological design decisions. I use SCOT to discuss how trans users tried to become recognized by the computerized state, and I show how the perception of hacking as revolutionary is limiting; hacking is often used by powerful actors to avoid confronting how technological design dovetails with civil rights.

Gender: Challenging and Reinforcing Gender Roles in an Early Social Network

Joy Marie Lisi Rankin, Michigan State University

In 1960, engineers at the University of Illinois began exploring the uses of computing in education; by 1970, they were expanding their networked system to include thousands of plasma-screen terminals around the United States. PLATO people produced personal and social computing; they taught, learned, worked, and played on their system. They shared their screens with each other; they swapped messages across the network seemingly instantly, and they traded jokes on digital bulletin boards. Most importantly, PLATO people performed gender on the system in multifarious ways. I argue that PLATO provided multiple venues in which its people (system engineers and administrators, instructors, students, and observers) could explore the boundaries of heteronormative gender roles; ultimately, however, the interaction of PLATO and its people
reinforced and re-entrained those roles in unexpected ways. I support this argument with three mini case studies. Examining the nursing work of Maryann Bitzer illuminates the gendered expectations of nurture and marriage built into the system. Analyzing the environmental activism of Valerie Lamont showcases the intersectionality of gender, social movements, and software. Finally, a close reading of the archived—and extensive—system notes files (essentially, a multi-year online bulletin board) unveils how the ideology of PLATO’s promise to revolutionize education for all masked the misogyny inherent in the system. Most scholars who have studied the gendering of 1960s and 1970s computing have considered only the professional realm. I employ gender and sexuality as analytical categories to illuminate a long-lived system and network produced by professionals and amateur users alike.

Disability: Making “Sense” of Computing through Sensory Processing Disorder and Autism
Meryl Alper, Northeastern University
This presentation employs disability—and specifically, the relationship between autism and difficulties with sensory processing—to understand how individuals negotiate the use of personal computers and new media in the public and private sphere. While not all autistic people have sensory processing challenges, and not all people with sensory processing issues are on the autism spectrum, sensory processing disorder is a condition associated with and part of the diagnostic criteria for autism. Just as autism exists along a spectrum, so too do sensitivities to sensory inputs, including hypersensitivity and hyposensitivity. Besides the senses of touch, hearing, taste, smell and sight, people on the autism spectrum can also be over- or under-sensitive to two additional “internal” senses—body awareness (proprioception) and movement (vestibular). As part of ongoing qualitative fieldwork with Boston-area families of autistic children ages 3 to 8, this presentation examines how sociotechnical space is constructed through sensory seeking and avoiding, particularly the use of smartphones and tablet computers in coping with sensory processing issues in spaces that afford varying degrees of personal control over sensory inputs. Fieldwork consists of observations at “sensory-friendly” events for families in public spaces (e.g., arcades, theaters), interviews with parents, and home-based observations of autistic children engaging in print, screen, and interactive media activities with a co-located family member. Taking a sociological approach, I draw on and critique work from sensory studies, disability studies, and science and technology studies to study how mediated relationships, practices, intimacies, and spaces are forged.

Play: On Manual Bots and Being Human on Twitter
Amy Johnson
Throughout Twitter, bots—automated accounts—abound. Among Japanese-language users, the bot category itself has taken on significance. People now draw on the bot category to create bot identities that involve little or no automation. Many such accounts are explicitly labeled "手動bot" (manual bot) or "半自動bot" (semi-automated bot). Stop for a moment and think about that: people are choosing to adopt the marker of a machine before interacting with other humans. Why? This paper examines the characteristics of the classic, automated bot category that make it appealing for explicit manual reuse—for play. It explores how platform and human unite to create an ambiguous interaction role that diffuses responsibility. It details the bot’s multiple markings, visible separately to human and machine eyes, and how those markings position bots as always and persistently no more than the everyday person on the street—and consequently shape expectations of interactions. It considers, too, the classic bot’s predictability, nonhumanness, and nonexclusivity as valuable creative and social constraints. Whether engaging in critique or more carnivalesque experimentation, the manual bot blurs the boundaries of the human and the automated to transform social interactions. Drawing on examples ranging from a bot that parodies Prime Minister Abe to a cheerful if rather cannibalistic pudding bot, this paper argues that being human in a machine-shaped social space like Twitter is hard. Sometimes it can be easier to interact there with other humans when you take on some of the machine.

Chair: Kevin Driscoll, University of Virginia
Discussant: Kevin Driscoll, University of Virginia

340. Architectural Design and Practice
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Clarendon

Participants:
Maintaining Political Care: Drawing and Architectural Pedagogy in Buenos Aires
Nicholas D’Avella, New York University
In the aftermath of Argentina’s political and economic crisis in 2001, buildings became an important form of economic investment for middle class Argentines, resulting in a boom in investment-driven construction. Pedagogic practice in the architecture school, however, remains an important place for the maintenance of forms of value in architecture that exceed those defined by real estate investment. This paper examines the politics of architectural design pedagogy in Argentina by drawing recent ethnographic observation into dialogue with the history of leftist movements that emerged in the architecture school in the late 1960s and early 1970s. In a university system repeatedly purged by dictatorships, Peronist architectural movements asked after the relationship between architecture and commodity society, and began the work of thinking architecture otherwise—work that continues today in some corners of the architecture school, where the inheritance of this past continues to work to extend architectural value beyond the requirements and obligations defined by the market. Of particular interest to me is how these politics are translated into the pedagogy of drawing, opening up a fraught terrain between the purity of a leftist politics that would write off architecture as an always already-commodified form of production and the messy practice of ongoing forms of care for the built environment that might endure in marketized worlds.

Building now and then: An existing structure prompts an imagined place
Arlene Oak, University of Alberta
Making buildings and talking about them brings people together—both through responding to, and voicing experiences of, materials, tools, and site, but also through discussing ideas and images of how things could be in the future. This paper explores how the act of building a ‘real’ structure on a particular site also builds a community of creators and a vision for what could transpire next. The paper is based on data gathered from an ethnographic study of ‘design-build’ architecture education, wherein students plan and also construct buildings. The paper explores how a ‘real’ structure and proposal drawings for the site in the future form a catalyst for new ways to imagine and talk about further transformations of a place. Through an exploration of the social interaction that occurs during a design review (during which students present a finished structure and a set of drawings to instructors and invited critics) this paper considers how participants in the review engage with both an existing site and structure, and also images and ideas of the future. The experiences of designing and building on a ‘real’ site are associated with the students’ presentation of themselves as ‘real’ architects—bringing to the fore issues of identity and performance in relation to materials, technologies, location, skill, etc. But the conversations that occur during the review also reveal how the structure and drawings act together as a prompt for the area’s further transformation. This paper contributes to STS through speaking to how a building and drawings work together on multiple levels: as pedagogic devices, as ‘real’ and speculative prompts for notions of the future, and
also as locations through which the architecture faculty positions itself in relation to the larger campus community. The social interaction that happens at the review, together with the existing building and renderings of possible futures, form an event that is grounded in materiality, but that also creates discourses and visualizations of what could happen next.

Mass Production Hits Home: the Production/Consumption Junction of the Modern House  
Steven Sacco, Loyola University Chicago

Issues of production have not been highly salient in social studies of technology. To a great extent this is a product of the way in which scholars have chosen particular objects of study, which tends to prioritize the role of design and the social preferences of the consumers of technology. Without discounting existing work, however, it is possible to show other cases in which production questions—concerns that inherently mix and meld people, knowledge, tools, materials, and methods to generate artifacts—are decisive shapers of technology in their own right. In this paper I use a case study method to consider three important alternative methods for building houses that emerged between 1900 and 1950, namely: kits (Sears homes), assembly line prefabrication (the Lustron house), and large suburban developments (namely, Levittown, NY). Following Cowan (1987), I argue that to understand certain technologies, we need to consider the inherent "production/consumption junction" in these cases. This in turn brings in another layer of the social shaping of technology: that of the basic materials, tools, knowledge, people, and methods of making things. In other words, not only do social processes shape particular artifacts, but they also shape things that go into making artifacts with significant repercussions for the final product. This work therefore aims at tying in existing understandings with a new focus on production so as to contribute to the sociology of technology.

Chair:  
Steven Sacco, Loyola University Chicago

341. The Politics of Economics and the Economics of Politics  
Traditional (Closed) Panel
4:00 to 5:30 pm  
Sheraton Boston: Floor 3 - Dalton

This panel examines the technopolitics of economic expertise, including both the internal politics of economics itself in distinct political contexts, and the political projects attached to particular economic ideas, devices, and techniques. Each paper discusses a distinct empirical case, all with connections to the Cold War era.

Participants:

Economists against "Limits"  
Kevin Baker, Northwestern University

At a press conference held at the Smithsonian Institution in 1972, an interdisciplinary team of researchers from one of the world’s most prestigious scientific institutions predicted the end of industrial civilization. If current trends in population and economic growth continued, they argued, pollution and the depletion of natural resources would cause billions to die of starvation and environmentally-induced illnesses by the middle of the 21st century. The MIT team behind the study, led by Donella and Dennis Meadows, published their results as “The Limits to Growth,” a book which sold over 12 million copies worldwide and was translated into nearly 40 languages. The book’s harrowing predictions about the consequences of economic and population growth sparked a global debate that dominated international politics in the 1970s and remains with us today. This debate was especially acute in the economics profession. Policymakers and the economists who advised them criticized Limits for its overly deterministic vision of the future, the low quality of the data the simulation used, and the impossibility of validating the model using conventional methods. Worse from their perspective, the book—and the methodology which lay behind it—seemed to challenge many of the core assumptions of economic profession. This paper explores that dispute, examining the ways that experts on both sides of the divide—economists and the “system dynamicists” behind the “Limits” report—sought to bolster their credibility in the eyes of a global audience of policymakers and the broader public.

The Generation of the GDR: Economists at the Humboldt University of Berlin Caught Between Loyalty and Relevance  
Till Däppé, University of Québec

The German Democratic Republic (GDR) existed for 41 years. This gave time for a single generation to spend their entire professional lives in this state—namely those born in the early 1930s who carried the hopes of this state. With Karl Mannheim’s notion of generations as a unit in the sociology of knowledge in mind, this essay describes this generation’s typical experiences from the point of view of a particularly telling group: economists at the Humboldt University in Berlin. I present their socialization in Nazi Germany, their formative years in the aftermath of WWII that led to their choice of a politically-driven profession, their studies during the first years of the GDR, when Stalinism was still the dominating dogma, and their commitment to a state career when writing their dissertations and habilitations. Ready to shoulder Honecker’s regime, their daily lives as professors was characterized by constant attempts to reframe and research. In 1989 the ultimate reform transpired, and encompassed the end of the state as well as their professional careers. This narrative historicizes, on an experiential level, a tension often noted in GDR research, that between the ideological and productive functions of knowledge in socialism, that is, between loyalty and relevance.

Metastatic communism: Soviet models of the political economy of the post-Stalinist Soviet Union  
Adam Leeds, Harvard University

Economist Yuri Yaremenko was obsessed with data. His colleagues recount how he spent all his days in the Lenin Library reading obscure trade periodicals to glean any and all information about the productive forces of the Soviet Union. He was second in command for the team coordinating the “Complex Program for Scientific-Technical Progress,” an encyclopedic twenty year forecast for the highest leadership. The first of four editions of the forecast was published in 1973, and the last in 1988, as the Union was beginning to unravel. In post-Soviet Russia, the past of Soviet technology has become an affectively charged resource for registering dissatisfaction with the present. In this paper, I unpack the future of that past as Yaremenko figured it in his unorthodox modeling practices. Yaremenko constructed an unorthodox variant of a standard Leontiev model order to reconstruct the unseen political forces driving the evolution of the Soviet economy. Based on this model, he told a gloomy story of the decay of central coordinating authority and the emergence of metastasizing independent industrial fiefdoms. He saw a future in which, if political control could not be reasserted, aging industries would ceaselessly reproduce the past, crowding out any chance of modernization in the present, and thus of realizing communist futures. Word of his reports spread throughout the Soviet technocracy and higher Party elite, stimulating spasmodic attempts at reform, and culminating in Gorbatchev’s perestroika. Fears of the Soviet Union’s collapse may thus in fact have hastened it. How did political economy appear through prism of equations modeling resource flows between industries? How was the late Soviet present re-imagined and subjected to critique from the standpoint of the future? How was “technology” made to bear the weight of materializing that future? This paper explicates these questions through Yaremenko’s modeling practice.

Resilience Governmentality: Toward a Genealogy of Systemic Risk Regulation  
Onur Ozgode, Duke University

The systemic risk regulation regime created under the Dodd-Frank Act of 2010 is one of the primary targets of the Trump administration’s agenda to dismantle the administrative state. This paper argues that this new regime is particularly vulnerable to such an attack because it rests on a hybrid form of governmental expertise the paper calls *resilience
governmentality." Allowing policymakers to reach all the way into financial markets like Citibank and make executive decisions on their daily daily operations, resilience governmentality deploys a puzzling form of intervention that is too intrusive to be neoliberal, and yet too cautious and restricted to be "interventionist." Tracing the genealogy of this intervention form, the paper shows that resilience governmentality was invented by a group of system analysts at the New Deal resource planning agencies to explain the Great Depression. These experts assembled a network of expertise to detect the systemically important points of vulnerability in the structure of the economy. Combining systemic analysis techniques (input-output interindustry tables) with non-monetary intervention instruments (stockpiles) under a problematization of the economy as a complex of vital and yet vulnerable economic systems, they sought to enhance the resilience of these systems by reducing the vulnerability of their systemically important points (the price of key commodity flows). Tracing the development of resilience governmentality at the Cold War defense mobilization preparedness agencies following the demise of the New Deal, the paper shows that this expertise network was remapped onto a financial ontology on the onset of the Latin American debt crisis to manage systemic risks in the financial system.

Chair: Daniel Hirschman, Brown University
Discussant: Daniel Breslau, Virginia Tech

342. Technologies of Self

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Exeter

Participants:

One, many, and millions: Is citizen science beyond the reproducibility crisis? Joseph M Reagle, Northeastern University

As social science, especially psychology, is battered by controversies over unrepeatable studies, two alternative "citizen science" methodologies are advanced by the Quantified Self movement. "N=1" studies are undertaken by assiduous self-trackers so as to improve their wellness, longevity, and performance with personalized analytics and interventions. Also, millions of self-trackers can aggregate their data into massive studies, with the benefits of increased subject diversity and analytic statistical power. I will consider "one" and "million" subject studies in light of a recent controversy over a prominent "many" subject study (N=42). In 2016, Dana Carney repudiated her work on "power poses," undertaken with Amy Cuddy and Andy Yap. Cuddy popularized their work with a TED talk and book wherein she claimed that "power posing," taking a confident posture for two minutes, increases confidence, risk taking, and testosterone, decreases cortisol, and improves how one is perceived in "stressful evaluative situations," like a job interview. Subsequently, Carney, who with Yap did most of the data collection and analysis, dissociated herself from the power pose. In hindsight, Carney feared they may have been measuring an artifact of the experiment rather than "an expansive posture effect." And in the analysis, they ignored data, selectively removed outliers, and reported only the statistical tests that showed significance. Although citizen science has merits, I will describe how the problems associated with traditional "many" subject studies (e.g., N=42) are equally applicable to N=1 and big data studies, touching on erroneous tracking, flawed methods, placebo effects, and p-hacking.

(In)Sensible Data: A Case Study of a Quantified-self Application for Employee Empowerment Janine Slaker, Michigan State University

The practices encouraged by the quantified-self are laden with the hope of empowerment. However, in monitoring the self in technologically mediated ways, this pledge is entangled with surveillance and processes of governance [1]. One context that highlights the empowerment-control dichotomy is when the ethos of the quantified-self is applied to worksite-wellness programs, as empowerment appears similar to historical modes of organizational control. An ethnographic case study of a quantified-self technology for worksite-wellness was conducted to investigate these dynamics. Data was collected in the tradition of ethnography, using an inductive approach for analysis. At the center of these findings is a conversation of biopolitics of the data-body [2]. As Ball [3] has described in her conception of "micro-struggles," the body in surveillance networks offers a site to enact resistance. This begins by critiquing whose body is privileged, then confusing the categories affirmed by the system. I attempt to expand this concept by charting micro-resistance. In particular, how fragmentation felt from surveillance was catalyst for introducing volatility into the surveillance-system as a form of gaining autonomy. Lastly, I introduce a concept of resistance that culminates in a queering of the "data-double" [4]. This research contributes to the conference theme regarding in/sensible data. From the perspective of the organization-as-client, the data generated by the quantified-self technology is insensible because it is outside normative data-bodies. On the other hand, this data is sensible because it offers an opportunity for employees to enact resistance to historical organizational control.

The Qualified Self in Quantified Times: Implications of translating embodied wellness practices into technological experiences Rebecca Jablonsky, Rensselaer Polytechnic Institute

Current scholarship on quantified self tracking fluctuates between the pendulum of technological utopianism and sociological critique. In this paper, I seek to develop a more nuanced understanding of self-reflective technologies by comparatively analyzing the quantified self movement, which encourage users to quantitatively track physical activity, bodily information, and mood, with the explosion of wellness culture in the United States, in which practices such as yoga and meditation encourage qualitative attention to and control of bodily experience. Drawing upon Foucault’s history of self-care and self-reflection that are presented in The History of Sexuality, as well as ideas that are further developed in Technologies of the Self, I first explore what I call a “qualified self” movement, which preceded digital technologies and bears a striking resemblance to practices employed in contemporary wellness culture. I then argue that qualitative, subjective experience has struggled to gain legitimacy within contemporary technoscientific discourse, and that this marginalization has encouraged the mainstream adaptation of yoga and meditation into more quantifiable, regimented practices that can be understood by scientific research. Finally, taking a critical but open-minded stance, I use autoethnography to begin exploring the implications of recently released meditation applications (such as Buddhify, Calm, and Headspace) and consider how the design of these systems can influence subjective sensory experience of the body, identity, and health—for better or for worse. This research contributes to STS conversations about quantification, subjectivity, and technological mediation of identity and experience.

Am I Pregnant?: Technology, Self-management, and Power Joan H. Robinson

This paper, adapted from a dissertation chapter in progress, examines pregnancy determination in contemporary America from the perspective of its users, women themselves. The home pregnancy test, not unlike second wave liberal feminism’s self-help movement, promised liberation from the medical gaze. This research asks, to what extent did the home pregnancy test move the locus of power from doctors, and where did it move the power? In-depth reproductive life history interviews were conducted with 40 women and 36 men who all had one or more experiences with home pregnancy tests. Participants were asked in detail about their use of the tests from their childhoods until
present, and their responses varied widely. The interviews resulted in well over 300 unique narratives of home pregnancy test use which were coded and analyzed for recurrent patterns. My research finds that the home pregnancy test provides a brief moment of freedom from doctors. However, in the diagnosis network, the home pregnancy test merely siphons off women who doctors have no interest in seeing, and many women continue to be medically managed. Additionally, women’s own management of their sexual and reproductive lives, rather than freeing women from shame and anxiety, reproduces it in new ways. These intimate narratives reveal women’s fraught relationship with their own self-management via their use of the home pregnancy test. By examining the intersection of technology and women’s bodies, this research contributes to core questions about the dynamics and distribution of power in social life.

Chair: Joan H. Robinson

343. Makers and Making

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Fairfax A

Participants:

Printing “Opiate” for the Masses: A Marxist Approach to 3D Printing
Tiffany Cheng, Barnard College, Columbia University

Karl Marx famously stated, “Die Religion...ist das Opium des Volkes,” or “religion...is the opiate of the masses.” The abolition of religion--specifically the elimination of this illusory happiness of humanity--would be a call for people's true happiness. Given the rise of digital design and tools such as 3D printers, more and more people believe that they are now empowered as agents of creation and manufacturers of change. They have access to new means of production: a novel way of “making” through “printing” at their leisure. But how promising is this new techno-ability in creation and manufacturers of change. They have access to new means of production: a novel way of “making” through “printing” at their leisure. But how promising is this new techno-ability in creating a utopian future for humanity? I undertake content analysis of Internet message boards, 3D printing advertisements/videos, and web pages and argue that the widespread rhetoric surrounding 3D printer's incredible fabrication ability is a misleading promise for a utopian future. To have a chance at actualizing true happiness, humanity needs to relinquish her illusion that salvation can be "printed.

Diffusing Making: The Performative Agency of the Fablab Hype
Evelyne Lhoste, French institute for agricultural research (inra); Marc BARBIER, Inra

Alternative organizational models such as makerspaces are part of a dynamic of the institutionalization of new practices of knowledge production and circulation. In France, they have been popularized through the label Fablabs, a brand that originated at MIT (Gershenfeld 2005). The importation of this standard during the early 2010s deserves a close attention in order to understand how this displacement has performed in terms of practices, how it has been contextualized in innovative milieu. Based on a sociological and ethnographic inquiry of several Fablabs located in science museums and “third places”, we have studied the processes of institutionalization that have accompanied the creation and development of these places since the emergence of the maker movement in France (Lhoste and Barbier, 2016). French fablabbers do not solely prone market-oriented innovation as a goal. They rather target the felicity of making in community creation and development of these practices where knowledge is produced and circulates freely among professional and field experts. They also consider digital fabrication as a grassroots technology based on practices and experiential knowledge rather than on a scientific literacy, and as an enhancer of citizen empowerment, entrepreneurship, and education in science, technology, engineering and mathematics (STEM). In this communication, we aim at further understanding the transformative agency of Fablabs and their contribution to the situated generalization of collaborative practices. Our analytical focus will rely on a grounded description of practices in Fablabs that account for the socio-materiality of heterogeneous assemblages (Orlikowski and Scott 2008; Lhoste and Barbier, 2016). Many stakeholders have been enrolled on premises of a transformation of innovation processes from a linear approach to a user-oriented approach. We thus question how a field of situated practices (Nicolini et al., 2003) of makers interrelates with organizational arrangements (Powel, 1987) that sustain the existence of such places. We will seek for the changes that occurred thanks to this Fablab movement in terms of knowledge production/circulation and in terms of the recognition of experiential knowledge. Our findings suggest that the activities of setting and the socio-materiality of Fablab are rather loosely coupled with the collaborative activities of fablabbers. We explore the meaning of this decoupling in terms of performative agency (Butler, 2010).

Erasing “the hype” of 3D bioprinting
Carlos Adrian Cuevas, TU München

3D bioprinting is a technology often associated to the future possibility of constructing human organs on demand. However, leading figures in the field argue that this is obviously a disproportionate and misleading expectation, a promise that should not be taken at face value. After the hype is highlighted and put aside (or erased), alternative and apparently more realistic applications are often suggested in order to fill the blank left by the erasure. Yet, as this call for abstracts suggests, “erasures are rarely complete”, and hyperbolic expectations are never entirely abandoned. This presentation will consider erasure as a partial, rhetorical and contextual situated component of the promissory language of contemporary technoscience. The presentation will suggest that after previous cases of expectations unmet, promissory language has become more nuanced and diverse. In that diversity, the rhetoric of hype may have adopted a rhetoric of moderation, in which erasure plays an important role. The presentation will draw on the case of 3D bioprinting to explore the multi-layered nature of promissory language, and the strategies used by technoscientific organizations to manage the dilemmas of promising and overpromising.

Representation in the Making: Constitutive Rhetoric and the Incongruent Discourses of the Maker Movement
Richard Besel, California Polytechnic State University

In the last decade, the “maker movement” in the United States has grown substantially. Several observers are optimistic that newly emerging makerspaces and Maker Faires are the future of Science, Technology, Engineering, and Mathematics (STEM). Due in large part to technological advances, such as 3D printing and open source collaborations, the maker movement is poised to change the way society uses, understands, and engages science and technology. However, only a few key texts and sites stand out in capturing current maker practices and identities. Make: magazine is, arguably, the most influential. Proponents of Make: magazine and Maker Faires have argued that these texts and spaces have introduced science, technology, and engineering concepts to populations that would not otherwise have encountered them. Indeed, it initially appears as though one’s identity does not matter; whether one is rich or poor, a man or a woman, or someone who does not easily identify with socially constructed categories, the maker movement is leveling the playing field. Although the spaces themselves may open doors to those who have been excluded from technical domains for a variety of reasons (and this is still contested), the communicative products accompanying and surrounding makerspaces and Maker Faires are less inclusive. This project takes the articles published in Make: magazine as its artifacts for investigation. Drawing on a framework grounded in constitutive rhetoric and intersectionality studies, this paper uses textual analysis to explore the rhetorical interpellation of maker identities and discovers two incongruent levels of maker discourses. Implications for science communication, especially the links between constitutive rhetoric and intersectionality, are discussed.

Chair:
Interdisciplinarity and Universities

Today, interdisciplinarity is on the rise, and is being promoted at multiple levels. The Europe 2020 agenda emphasizes interdisciplinarity to foster cross-cutting and potentially innovative research. National governments increasingly orient themselves towards addressing societal challenges like aging and global warming. Universities are funding cross-department research initiatives (Biancini, McFarland, Dahlander, & Owens, 2012) and supporting the development of interdisciplinary research centers or institutes (Berman, 2012). Despite policy enthusiasm for interdisciplinarity, national governments have been promoting interdisciplinary research (IDR) in order to foster cross-cutting and potentially innovative research. National governments have been promoting interdisciplinary research (IDR) in order to foster cross-cutting and potentially innovative research.

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North Rhine-Westphalia (NRW) state. In addition, we map the interdisciplinary practices at the University of Duisburg-Essen university (UDE). Drawing on the neo-institutional theory, we expect that governmental funding and policies influence the commitment of universities to foster interdisciplinarity. Based on document and website analysis, we find interdisciplinarity to be advocated in policies and funding arrangements at the federal and state levels. At the state level, Ministry of Innovation, Science and Research of the State NRW developed a research strategy with a specific emphasis on interdisciplinarity to address grand societal challenges in different thematic priorities. These commitments to interdisciplinarity are also discernible at the university level and to some extent influenced by top-down initiatives. The latest Development Plan of UDE includes the consolidation of an interdisciplinary center for education research. Moreover, the university aims to pool its research competences of various disciplines to inter alia establish interdisciplinary research networks. Our paper contributes to STS research in understanding interdisciplinarity in its context - policies and mechanisms in Germany that promote interdisciplinary research and how it is taken up by universities as organizations.

University Commitment to Interdisciplinary Research Erin Leahey, University Of Arizona

In recent years, science policy and university administrators have been promoting interdisciplinary research (IDR) in order to foster innovation and address grand scientific challenges. But to date we know little about how and to what extent universities are committed to IDR. The goal of this paper is to construct a valid measure of university commitment to IDR. Extant measures proposed in the literature, such as the ratio of research centers to departments, provide a foundation upon which we build. First, we interrogate the assumptions that research centers are inherently interdisciplinary, and departments are inherently mono-disciplinary, and instead measure this empirically. Second, we question the content validity of previously proposed measures that rely only on counts of research centers and departments. We contend that universities’ commitment to IDR should also be evident from advertisements for faculty positions: universities seeking to fill interdisciplinary faculty lines show greater commitment to IDR. Using these data, we employ a variety of analytic techniques, including traditional content analysis, semi-supervised machine learning, and confirmatory factor analysis, to develop a valid and reliable measure of university commitment to IDR. We use IPEBS and other institutional data to examine how university commitment to IDR varies both within and across universities. Within universities, prior research leads us to suspect that interdisciplinary centers are concentrated in the natural and medical sciences and interdisciplinary departments are concentrated in the arts, social sciences, and humanities. Across universities, we examine how university size, geography, and research capacity are related to university commitment to IDR.

Measuring Interdisciplinarity Resulting from International Scientific Collaboration Alejandro Arnulfo Ruiz León, Universidad Nacional Autónoma de Mexico - IIMAS; Ninia Jung, Universidad Nacional Autónoma de México

Collaboration and science are two inseparable terms. Especially to study different points of view of a research phenomenon may require working together with colleagues from other disciplines, which then leads us into what we call inter- or transdisciplinarity. When these collaborations integrate scientists from different countries, this adds another level of complexity within their relations. Based on a previous work we developed two indexes to measure international scientific collaboration, one for international collaboration per institution, in which relations were weighted based on their consistency during the considered period, and a second one for foreign institutions and countries of origin. As we could affirm, scientific collaboration on an international level is a practice in science that concerns many scholars, as well as interdisciplinary collaborations. Also, much has been said about collaborations and international knowledge production in general, but little has been known about how to measure such collaborations that lead to interdisciplinarity. In this context we propose an approach on how to measure and visualize international collaborative work at the institutional level that gives us answers about interdisciplinary research products based on the categories of the Web of Science (WoS) database. By using longitudinal semantic networks as co-classification networks we take into account density and centrality measures in order to quantify and picture the phenomenon of interdisciplinarity. Our case refers to the area of scientific research of the National Autonomous University of Mexico and its participation with foreign institutions (co-authorships) between 1981 and 2013.

From Seed to School: The Development of Interdisciplinary Networks from IGERT Grants Michael Burnam-Fink, Arizona State University

Why do some interdisciplinary initiatives become durable features of a university, while others fade with their initial funding source? This paper uses analysis of publications and mentorship networks, combined with qualitative investigation of project leadership and culture, to examine the differential outcomes of a small number of IGERT grants at an American university committed to interdisciplinary scholarship. The NSF IGERT Program (Integrative Graduate Education and Research Traineeship) was a set of 85 similar grants of $3 million over 5 years to fund new interdisciplinary models of graduate education. Though the IGERT program was wound down in 2013, key aspects of its model are continued in new NRT (NSF Research Traineeship) grants. This paper provides a preliminary investigation of how the same national research funding seed
flourishes under different institutional conditions, offering empirical verification of the 2015 National Academy of Sciences "Enhancing the Effectiveness of Team Science" white paper. Research is done by human beings working in a social context. Collaboration networks in publications and mentorship indicate who does the hard work of making interdisciplinarity successful, and which factors encourage research groups to take interdisciplinarity seriously.

Transformative Institutions: Interdisciplinary Imaginaries in Science, Engineering, Art, and Design Kari Zacharias, Virginia Tech
Research, teaching, and engagement efforts that span science, engineering, art, and design (SEAD) have become a common feature of American research universities. Since the early 2000s, institutions from Stanford to Iowa State have built interdisciplinary departments, institutes, centers, and degree programs that blend the arts and technology. These organizations differ in their specific structures and goals, but share common rhetoric and practices. In this talk, I examine the construction of university-based SEAD institutions in practice, exploring how imaginaries of transformation do and do not result in change on the ground. In particular, I draw from ethnographic and archival research at Virginia Tech and its Institute for Creativity, Arts, and Technology (ICAT) to explore how the ongoing institutionalization of SEAD relates to imagined transformations of place, organization, and individuals. I demonstrate how Virginia Tech’s status as a land-grant university has helped to shape the university’s approach to inter- and transdisciplinarity through “context-specific negotiation” (Klein, 2004), as institutional history allows stakeholders to imagine future engaged, interdisciplinary “(V)IT-shaped” scholars. I examine the factors that led to ICAT’s founding, including the evolution of the land-grant mission, new developments in the broader national landscape of art-technology work, and university administrators’ desire to define an appropriate role for the arts at Virginia Tech. Finally, I explore the implications for individual stakeholders, showing that the development of SEAD institutions is neither “top-down” nor “bottom-up” (Jacobs and Frickel, 2009), but rather a co-construct of potentially transformative individuals and institutions.

Chairs
Liudvika Leisyte, TU Dortmund, Center for Higher Education (zhb)
Erin Leahey, University Of Arizona

345. Border Quants: Biopolitics of Self-Quantification at the Border
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Gardner B

Personal quantification with wearable sensor technology continues to grow as a dominant force in health and lifestyle practices as the consumer wearables market expands with billions of wearable devices in use, and annual global market trends predicted to exceed 6 billion USD in 2018. Despite the economic monolith of the consumer wearables industry, the individual use experience is nuanced and variable. An emerging wearables literature suggests that wearable quantification devices do not drive behavior change, but rather are a tool to facilitate behaviors. Indeed, the use experience is highly nuanced and variable, raising questions about the biopolitics of quantification technologies as a locus of social control enabled by big data surveillance or a tool for decolonizing individual empowerment enacted through human-centered N-of-1 approaches. Borders are constructed in geography, society, discipline, practice, performance, and method, offering a variety of borderlands in which to explore the biopolitics of human-centered quantification as a tool of empowered self-knowledge production versus an instrument of social control. The Border Quants research group approaches each of these borders individually and collectively through a series of practice, performance, and research approaches using a shared feminist theoretical lens and a common quantification approach with the Jawbone 3 activity tracker. This panel presents a series of individual papers from the Border Quants research group exploring how individual quantification using wearable sensor technology shapes the regulation and production of knowledge in a collection of research, practice, and performance cases situated in a variety of conceptual borderlands.

Participants:
Indigenous Women's Subjective Experiences Using Health-Based Activity Monitors Toward Personal Wellbeing
Marisa Elena Duarte, Arizona State University
The ecological determinants of health literature suggests that Indigenous and immigrant women—particularly in the context of the US-Mexico border—contend with conditions that constrain access to basic care, healthy lifestyles, and acknowledgement of Indigenous and/or non-Western wellbeing modalities. Increasingly, a sector of Indigenous women in the US-Mexico borderlands participate in quantified self practices, even as the sociotechnical literature suggests that these devices are entangled within colonial, racist, and sexist structures and practices. Through a decolonizing mixed-methods approach to uses of digital health activity trackers—including user logs, surveys, and interviews—this study describes Indigenous and borderland women’s uses of digital health activity trackers in the context of Indigenous and non-Western health and wellbeing modalities. Findings reveal how gender, immigration, and Indigeneity relate to aspects of the quantified self movement, in particular as these intersect with Indigenous women’s practices of health and wellbeing.

Embodying Data: Duoethnography as a Feminist Methodology for Studying Wearables
Marika Cifor, University of California, Los Angeles; Patricia Garcia, School of Information, University of Michigan
Wearable fitness trackers allow for health data to be collected passively; users simply have to remember to put on their fitness tracker in order to have their steps counted or heart rate monitored. Although these devices offer the promise of personalization through the collection of user-generated health data, they offer little customization and block access to the algorithms that translate the raw data into actual health statistics. In this paper Garcia and Cifor argue that the generation of numerical data that can readily be graphed and compared to that of other users simplifies subjective, gendered, and racialized experiences down to commensurable data points. They explore the use of duoethnography as a feminist methodology for examining the experiential and embodied aspects of self-tracking through the process of personal narrative.

Not My Data: Troubling Notions of Embodied Agency in Consumer Wearables
Jessica Jean Rajko, Arizona State University
Advocates of self-quantification suggest consumer wearables provide effective models for tracking physical self. However, individuals such as somatically informed dance practitioners who already hold deeply intimate relationships with their own bodies provide a different lens with which to see such technologies. Once the novelty of self-tracking dissipates, what is left? In this paper I will share the experiences of five dancers wore health activity trackers during the collaborative creation of a new dance work. Through their autoethnographic accounts, movement compositions, and discussions, I highlight the troubling implications of relying on datasets to define health and the insidiousness of ongoing corporeal surveillance. While this paper strongly critiques self-quantification as a method of self-discovery, it can also be seen as a “calling in” to those whose everyday lived experiences no longer invite or invest in a body-centered consciousness. In this I argue for the consideration slower, mesnier, more multilayered methods of generating physical self-awareness “instead of” or “in addition to” self-quantification.

Testing the Limits of the Quantified Self at the Qual-Quant Borderland: What Can Data Quantification Tell Us About Lived Experience?
Heather M Ross, Arizona State University
University
Self quantification promises to uncover the secrets of our daily lives that are otherwise rendered invisible in the experience of living. This promise lives in a burgeoning quantified self movement and growing prevalence of so-called N-of-1 studies. Self quantification practices echo the prevalent regulatory mechanism that relies on quantification as the accepted currency for capturing lived experience in clinical research studies admitted as evidence of efficacy in drug and device research. However, there exists a tension between quantification and qualitative knowledge. This paper examines the tension between self-quantification and unquantified experience using a mixed methods approach to explore the lived experience of disparate groups of people using a single type of common self-quantification device: the Jawbone Up3 activity monitor. Several groups of people with common lived experience wore a Jawbone Up3 monitor during their daily life and practice: patients with heart disease were instructed to monitor their data daily for specific health tracking reasons; indigenous women in the Mexican-American borderland region wore the device to capture exercise data; dance artists wore the device during the process of choreographing and rehearsing an extended mixed-media piece; interdisciplinary human security researchers wore the device in the course of their individual research related to self-quantification. Combining self-monitored data with ethnographic interview, this paper explores the limits of quantification to represent lived experience. These findings have implications for clinical research design approaches to capture quality of life and lived experience for efficacy studies in modern regulatory regimes.

Chair: Jamie Winterton, Arizona State University

346. Internationalizing Science and Technology II
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Hampton B

If we accept, with most STS scholarship, that science and technology are the outcome of heterogeneous networks that transcend the relatively fixed spaces where they are enacted (from laboratories to cities to national systems of innovation), then it seems difficult to consider their internationalization as a phenomenon worthy of study. Nevertheless, from pioneering works in the field, such as Shapin and Schaffer’s Leviathan and the Air Pump and Latour’s Science in Action, there is interest in exploring the micro configurations. If we accept, with most STS scholarship, that science and technology are conceived as relational concepts, thus considering that both “central” and “peripheral” forms of science are heterogeneous entities, which include a variety of practices and methodologies. Aiming to verify empirically this division of labor, an analysis was made of the contributions of researchers in written articles with collaborators from abroad, based on a survey of human genetic researchers in Brazil (N = 416). The analysis focuses on a particular journal, Plos One (non-profit, open content and peer reviewed), and its use is justified, in addition to its relevance in the area, for requiring explicit discrimination of authorship activities. In other words, it is necessary to say “who did what” in the article – or the research that led up to it – so that it is possible to verify the contributions given by Brazilian scientists to the published scientific work. The results indicate a division of labor in terms of separation between conception and execution, between analysis and data collection, with the Brazilian participation being more frequent as contributors with samples of Brazilian patients, when compared to data analysis or written formulation.

Mapping Scientific Collaboration between the US and Muslim Countries Thed van Leeuwen, Indian Institute of Technology Delhi, Wouter Wouters, Centre for Science and Technology Studies (CWTS); Sarah de Rijcke, Centre for Science and Technology Studies, Leiden University

With the election of the Trump administration into the White House, the United States seems to be taking a more isolationist turn in many areas of governmental policy. Although events are still unfolding, the implications of recent proposed policies for the standing of US science are of immediate concern. In this paper we consider whether one policy - the travel ban - which the current president seems intent to push through, would deprive the US of potential talent from Muslim countries? How will this influence the current dominance of US based scientific institutions at the international research front? And how will this affect the role of the US in international scientific collaboration? This paper addresses these questions by analyzing the development of international collaboration over the last thirty years. We have collected publication and citation data and analyzed the extent and nature of collaboration among researchers based in the US and the most important countries in biology community. With more than 20,000 documented genetic parts, the international effort to build synthetic biology devices and systems using ‘Get & Give (& Share)’ philosophy. However, production, maintenance, circulation, use and reuse of these genetic parts and knowledge thereof by over 300 teams spread across 40 plus countries in 6 continents is an achieved feature. Based on ethnographic study of an Indian iGEM team, this paper seeks to focus on asymmetries in knowledge circulation and internationalization. The imagination that parts users ‘get’ from iGEM registry and ‘shared’ documentation available on web, deliver knowledge to teams is problematic. Various factors make it difficult for participants to acquire, apply, and generate knowledge in practice. A team must learn and invent ways to do so. This problem is further complicated by the associated materialities that dis/encourage internationalization while reinforcing asymmetry. It then unduly affects the ‘give’ aspect of iGEM philosophy, introducing errors that make it difficult or impossible for other teams to appropriate and reuse parts. Knowledge circulation does not thus mean easy translation into knowledge production and internationalization, given the asymmetries in domestication.

International Division of Scientific Labor – An Outlook on Brazilian Human Genetics Mariana Toledo Ferreira, Universidade de São Paulo / IFG

The paper seeks to discuss the international division of scientific labor in the field of human and medical genetics from Brazilian laboratories, using the relationship between center and periphery as an analytical resource. This approach emphasizes that scientific activities are divided unevenly among the different regions of the globe. For this analysis, centers and peripheries are conceived as relational concepts, thus considering that both "central" and "peripheral" forms of science are heterogeneous entities, which include a variety of practices and methodologies. Production, maintenance, circulation, use and reuse of these genetic parts and knowledge thereof by over 300 teams spread across 40 plus countries in 6 continents is an achieved feature. Based on ethnographic study of an Indian iGEM team, this paper seeks to focus on asymmetries in knowledge circulation and internationalization. The imagination that parts users ‘get’ from iGEM registry and ‘shared’ documentation available on web, deliver knowledge to teams is problematic. Various factors make it difficult for participants to acquire, apply, and generate knowledge in practice. A team must learn and invent ways to do so. This problem is further complicated by the associated materialities that dis/encourage internationalization while reinforcing asymmetry. It then unduly affects the ‘give’ aspect of iGEM philosophy, introducing errors that make it difficult or impossible for other teams to appropriate and reuse parts. Knowledge circulation does not thus mean easy translation into knowledge production and internationalization, given the asymmetries in domestication.

Self quantification promises to uncover the secrets of our daily lives that are otherwise rendered invisible in the experience of living. This promise lives in a burgeoning quantified self movement and growing prevalence of so-called N-of-1 studies. Self quantification practices echo the prevalent regulatory mechanism that relies on quantification as the accepted currency for capturing lived experience in clinical research studies admitted as evidence of efficacy in drug and device research. However, there exists a tension between quantification and qualitative knowledge. This paper examines the tension between self-quantification and unquantified experience using a mixed methods approach to explore the lived experience of disparate groups of people using a single type of common self-quantification device: the Jawbone Up3 activity monitor. Several groups of people with common lived experience wore a Jawbone Up3 monitor during their daily life and practice: patients with heart disease were instructed to monitor their data daily for specific health tracking reasons; indigenous women in the Mexican-American borderland region wore the device to capture exercise data; dance artists wore the device during the process of choreographing and rehearsing an extended mixed-media piece; interdisciplinary human security researchers wore the device in the course of their individual research related to self-quantification. Combining self-monitored data with ethnographic interview, this paper explores the limits of quantification to represent lived experience. These findings have implications for clinical research design approaches to capture quality of life and lived experience for efficacy studies in modern regulatory regimes.

Chair: Jamie Winterton, Arizona State University

346. Internationalizing Science and Technology II
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Hampton B

If we accept, with most STS scholarship, that science and technology are the outcome of heterogeneous networks that transcend the relatively fixed spaces where they are enacted (from laboratories to cities to national systems of innovation), then it seems difficult to consider their internationalization as a phenomenon worthy of study. Nevertheless, from pioneering works in the field, such as Shapin and Schaffer’s Leviathan and the Air Pump and Latour’s Science in Action, there is interest in exploring how knowledge changes when it travels from its place of production to others where it is used, appropriated, and eventually critically defied. In this open panel we want to analyze the current and seemingly unstoppable trend of knowledge internationalization by addressing issues such as (i) the international dimension of knowledge production in both social and natural sciences, (ii) the policies that encourage internationalization and the challenges they bring about, (iii) the effects of asymmetries in knowledge circulation, (iv) the role of materialities (e.g. instruments, standardized procedures, software, etc.) to dis/encourage internationalization, (v) the relevance of language(s), and (vi) the adaptations of researchers, research teams, and institutions to increasing pressures to internationalize their work by national and international funding agencies. We call together scholars from different disciplinary backgrounds, different geographical locations, and using a diverse range of theoretical and methodological approaches in order to problematize internationalization and to understand its macro and micro configurations.

Participants:
Does Knowledge Circulation Means Translation – Case of iGEM and Synthetic Biology Mahendra Shahare, Indian Institute of Technology Delhi

Emerging field of synthetic biology and annual International Genetically Engineered Machine (iGEM) competition share a constitutive and symbiont relationship. In fact iGEM brought global recognition to synthetic biology. The registry of standard biological parts, built by contributions of undergraduate student teams working for iGEM through summers in their university laboratories, forms a crucial resource and toolkit for synthetic biology community. With more than 20,000 documented genetic parts, the international effort to build synthetic biology devices and systems using ‘Get & Give (& Share)’ philosophy. However, production, maintenance, circulation, use and reuse of these genetic parts and knowledge thereof by over 300 teams spread across 40 plus countries in 6 continents is an achieved feature. Based on ethnographic study of an Indian iGEM team, this paper seeks to focus on asymmetries in knowledge circulation and internationalization. The imagination that parts users ‘get’ from iGEM registry and ‘shared’ documentation available on web, deliver knowledge to teams is problematic. Various factors make it difficult for participants to acquire, apply, and generate knowledge in practice. A team must learn and invent ways to do so. This problem is further complicated by the associated materialities that dis/encourage internationalization while reinforcing asymmetry. It then unduly affects the ‘give’ aspect of iGEM philosophy, introducing errors that make it difficult or impossible for other teams to appropriate and reuse parts. Knowledge circulation does not thus mean easy translation into knowledge production and internationalization, given the asymmetries in domestication.
the Middle East, including the seven Muslim countries affected by the recent ban. We explore in which types of research the collaboration is particularly noteworthy. The paper also explores the role of US based immigrant scientists based on our algorithms to identify unique author names. The evaluative part of the study will show to what extent the current ban of the Trump presidency will likely have detrimental effects on the development of science both in the US and in the Middle East.

Asymmetrical Cooperation: De-Politicizing International Networks in Current Social Sciences? Leandro Rodriguez Medina, Universidad de las Americas Puebla

The politicization of science is one of the major consequences of the sociological approach to science that became mainstream in the last decades, especially in the realm of Science and Technology Studies (STS). A growing interest in how politics and the State shape, and are shaped by, science is nowadays a feature of the field, where case studies have prolifically illustrated the multilayered nature of this entanglement. In this context, the internationalization of science has been studied via the role of empires in knowledge diffusion, the effects of inter-government organizations (such as UNESCO), the weight of trans-national public policies (e.g. commodification of higher education suggested by IMF and WTO), and the convergence of institutional policies (such as mobility and dual-degrees programs). Still, this politicized understanding of science seems to face a major obstacle: for many young academics, the internationalization is nothing more than a dimension of their careers that need to be developed. Put differently, an overpressing structure of incentives has somehow naturalized the international connections of scholars in such a way that they tend to downgrade any political dimension (and epistemic consequences) in order to meet institutional requirements and individual interests. Since scholars are nevertheless conscious of differences between national fields, in terms of institutions’ and academics’ prestige and resources, we call this strategy of internationalization ‘asymmetrical cooperation’. In this paper, relying on current research on internationalization of Mexican social sciences, we explore the usefulness of this concept and discuss the implications of it for the disciplines and the actors involved.

Social Sciences as International Science and Technology Resources Amanda Almeida Domingues, Georgia Institute Of Technology

In history and sociology of science, it is well documented how science and technology (S&T), in particular mathematics, biology, agriculture (physical and biological sciences) impact colonial and postcolonial social, political, economic, and scientific relations around the globe. These scholars demonstrate that S&T are essential resources that determine and influence the relations between countries. However, how the social sciences (anthropology, sociology, geography, political science, among others) affect these relations has barely been studied. This paper presents three case studies, which reveal the importance of anthropology, sociology, and geography in characterizing the relations among different countries. The first case study shows how the work of anthropologist Ruth Benedict (The Chrysanthemum and the Sword) promoted a collaborative, rather than punitive, American occupation of Japan after the Second World War, which influenced later American policy. The second case study presents geography and the work of Isaiah Bowman as crucial to the United States’ foreign policies as well as to the international understanding of Latin America in the first half of the 20th century. Lastly, I will show how several ideas, transported from Europe to Latin America, influenced not only social sciences produced there, but also the ideals of citizen, politics, history and society in the region. European social sciences, based on its contacts with countries in the “periphery,” constructed concepts such as barbarism, tradition, myth, mechanic solidarity, among others. The objective of this paper is to promote inquiry into this domain, by showing how important the social sciences are in influencing international relations among countries.

Chair: Leandro Rodriguez Medina, Universidad de las Americas Puebla

347. The Call of Communism, or How to Handle Frail Political Capacities with Care?

Traditional (Closed) Panel 4:00 to 5:30 pm

Sheraton Boston: Floor 3 - Jefferson

Two conferences on “The Idea of Communism” (London 2010, Rome 2016) have galvanized academics and non academics, students and lecturers, and among them STS scholars. Indeed, it is both enticing and relevant for us, STS scholars, to work towards the reclaiming of the commons (Stengers). For years, we discussed how science and technology could be involved in such reclaiming, and unfolded the consequences of scientific knowledge on whom it concerns. Our STS sensibilities might combine with today’s Marxists concerns. However, we must proceed with caution. For such a connection may as well destroy frail political capacities which cannot be grasped in Marxist terms. Tentatively constructed, collectively cared for and more-than-human worlds, such as those we are investigating in STS, might fail to live up to the “Idea of Communism”, if such an idea becomes the measure of all commons reclaiming today. In other words, STS must adjust its practice and politics of inquiry so as to add local, popular, traditional, heterodox and non-Marxist reclaimers to the picture. In this panel, we discuss experimentations and struggles which appear trivial through Marxist lenses but which entail powerful reclaiming dynamics nonetheless. We will show how STS allow for grounding the grand revolutionary horizon in situated and frail, but empowering collective constructions; how to account for and strengthen these emerging political capacities by not reducing them to a call’s mantra. In such terms, a combination is definitely possible; which, in turn, might extend the realm of our own STS sensibilities.

Participants:
“Some commons or I will suffocate!” Or How to escape mechanical assemblages in cow genomics? François Thoreau, Spiral, University of Liege

How to escape mechanical assemblages? “Du possible sinon j’étouffe!” Those famous words from Deleuze indicate not a solution but a problem. This problem is particularly acute in situations of mechanical assemblages, driven as they are by scientist rationality, efficiency, optimization, powerful institutions or, increasingly, by algorithms. This contribution starts with such an assemblage which has been built around and with the livestock industry in Belgium, for meat production. The goal is to sequence the genome of enough bovines from the Blanc Bleu Belge breed so as to constitute a population of reference and further cattle selection processes. The main protagonists are a cleanroom in a hospital, scientists, bureaucrats, blood samples, PCRs, livestock industrials, sequencers, professional semen producers and genome analysis. This setting produces a closed scene where knowledge is gathered on the back of bovines and translated into parameters and indexes, immediately valued into € currency. Genomics, in this picture, seem to only reproduce the main gesture of modern breeding, i.e. enclosing the practice of breeding (in Despret’s terms). There begins our problem: in this situation, which commons are there left to build? This problem is a world-making problem. Frail possibilities arise in a problematic relationship to such mechanical assemblages. It matters to distinguish where lines of escape begin and how to handle them with care. Then it is also a problem of practice of inquiry, where it matters to qualify a situation with respect to its lines of divergence, and strive for the commons it bears.

Kitchen-gardening opens up a sense of belonging in disturbed times Alexis Zimmer, Université Libre de Bruxelles

What makes us fond of a place? What bonds make us hold onto a place? When do such fragile belongings to a place arise? Last but not least, what skills are at work and are required for holding together all the facets and dimensions of the place? A Brussels’
348. Working with/against the Politics of Benevolent Neuroscience

Benedikte Zitouni, Saint-Louis University, Brussels

Alexis Zimmer, Université Libre de Bruxelles

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 3 - Kent

Promises of neuroscientifically aided improvements of health and social life abound in the scientific press and popular media. This panel discusses developments in neuro-therapies and social neuroscience that confront psychological and socio-political perils of contemporary societies, including mental illness, learning disorders, racialized violence, and socio-economic stratification. We elucidate arguments and practices through which social injustice and traumatic life experiences are located in the brain, and we inquire into the extent to which neuroscientists unwillingly stabilize injurious social orders by naturalizing them and the associated stigma.

Acknowledging the oftentimes explicitly benevolent goals of the scientists involved, we ask how STS scholars can go beyond “sensing” potentially adverse assumptions and methodologies that underlie this research: How can we shape knowledge production in the neurosciences? What new skills might we have to acquire to engage in conversations with scientists and policy makers? To what extent do we want to embrace neuro-knowledges in our own work? The papers on this panel draw on feminist STS, disability studies, post-colonial studies, and history and philosophy of science. They extend the literature on ‘neuro-reductionism’ by focusing on the intersectional imaginaries of neuro-knowledges and neuro-technologies. In particular, the papers question the epistemic foundations of purported cerebral ‘types’, which depend not only on the specific institutional contexts of their production, but also on the irreducible neuro “multiple,” that is, differing but overlapping perceptions of what the brain is, how it functions, and how it relates to the rest of the body and an individual’s character (cf. Mol 2002).

Participants:

- Innocuous Intersectionality? The Politics in Handedness
  Research
  Tabea Corneli, University of Pennsylvania
  
  Scientific classifications of hand skill and preference seem innocuous, but they have historically been and continue to be highly political. Throughout the past 150 years, measuring left- and right-handedness in different populations fed into stereotypical ideas of hierarchical brain typologies. In the 1860s, Paul Broca suggested that ‘normal’ individuals are right-handed because they are left-brained. Subsequently, brain and mind scientists employed anatomical studies to explain the correlation between left-handedness and inferior intellectual abilities or criminal tendencies, thereby providing scientific foundations for the stigmatization of left-handers. From the 1960s through the 1980s, psychologists reframed the association of handedness and brain asymmetry in genetic terms. They connected left-handedness with a ‘risk’ of various psychiatric illnesses and learning disorders. In the 1980s, neurologists introduced a hormonal theory of handedness, linking ‘abnormal’ intrauterine testosterone exposure with left-handedness, immune disorders, learning disabilities, and sexual deviance. This paper draws from oral histories, archival records, and scientific publications from Europe and North America. Engaging feminist STS and the history and philosophy of classification, I illustrate that the three-step cerebralization of handedness (anatomical, genetic, hormonal) parallels the historical essentialization of race, sex/gender, sexual orientation, and intelligence. In particular, each period exhibits a distinct form of ‘neuro-reductionism’. I argue that critiques of scientific typologies should be intersectional on two levels: attention to socio-political intersectionality reveals the contingency and discriminatory potential of all classification systems; and epistemic intersectionality accounts for the specific reductive mechanisms and promises at play in anatomical, genetic, and hormonal approaches to brains, entire bodies, and populations.

- Neuro-Visions of the Prejudiced Mind: Neuroscience and the Search to ‘Cure’ Racism
  Oliver Rollins, University of Pennsylvania

Chairs:
Implicit bias research contends that indirect measures of attitudes or beliefs can be employed to capture an individual’s buried stereotypes about a specific phenomenon or social group. Today, neuro-psychologists interested in questions about race and racism are utilizing neuroimaging technologies as a more precise way to test for and measure implicit neural correlates of such behaviors. Unlike racial science of the past, these researchers contend that neuroimaging captures how our brains process the socially constructed nature of race, and the neural mechanism that monitor and regulate our hidden biases. In this paper, I investigate the goals and challenges of using neuroimaging to address racism. I show that neuroscience research on implicit racial bias has biomedicalized racism as the dysregulation of an otherwise normally functioning brain. These neuroscientists have put forth a particular “sociotechnical imaginary” (Jasanoff and Kim 2009) of both race and racism; an anticipatory vision that may help create a new kind of (neo)biological citizen, in which misperceptions about race will only be knowable and/or potentially “cured” through a neuro-vision. I trace the development of potential neuro-interventions for racism and assess the biopolitical impacts of these technoscientific practices. While we should take seriously these attempts to better address prejudice and bias, I argue that we cannot incorporate these neuro-knowledges into policies and/or interventions that emphasize implicit bias at the individual level without the risk of unintentionally overshadowing, overlooking or even excusing larger more systemic discourses and practices that engender and reconstitute existing social hierarchies of race.

The “Neural Phenotype of Poverty” and the Carceral Imagination Victoria Pitts-Taylor, Wesleyan University

A brain-based understanding of antisocial behavior and criminality informs a range of mood and cognition management practices in institutional settings, including schools. This paper considers school curricular interventions that aim to ameliorate the ‘neural phenotype of poverty’ reportedly found in the brains of poor, urban schoolchildren (Pitts-Taylor 2016). Brain-training techniques targeting the prefrontal cortex are being promoted in some schools not only for improving poor children’s academic performance, but also for enhancing executive function and thereby modifying behavior patterns. In this paper I assess some of the research on poverty’s neural phenotype through an intersectional lens. First, although the studies I examine on the neural phenotype of poverty are ostensibly race-blind, I consider how neurobiologically informed brain interventions aimed at modulating behavior, or ‘neurocorrections’ (Hatch 2016), may be racialized, as well as gendered and classed—that is, inflected with social stratifications. Second, I argue that the institutional and real-world context in which the neurosciences are deployed render them meaningful; for poor schoolchildren, this reality includes the school-to-prison pipeline. I consider the neural phenotype of poverty through the lens of a “carceral imagination” (Benjamin 2016), asking how the specter of prison works rhetorically, often implicitly, to justify brain-based cognitive interventions. Third, I critically assess to what degree brain-based solutions and interventions are compatible with an intersectional and structural account of the causes of poverty and mass incarceration.

Can Therapy Be Cool? An Investigation in the Mediatization of Neuro-Technology Marisa R Brandt, Michigan State University

In November 2015, Dr. Tom Insel left his position as director of the NIMH in order to join Google, and justified the move based on his belief that neuroscience-driven digital media are the future of mental health care. This paper interrogates the politics of these mediated and mediatized therapies. By examining promotional materials and popular media coverage of brain games, neurofeedback, and virtual reality therapy, I show that digital interventions do more than expand horizons for the neurosciences—they are also being mobilized to evoke new imaginaries of medical progress in the often-beleaguered field of mental health care, ones that evoke the coolness of Silicon Valley. They promise to desensitize therapy by modernizing it, while promising a viable alternative to psychopharmacologicals. Moving beyond critiques that dismiss them as hopelessly technotopian and neuro-reductionist, I draw on fieldwork and interviews to highlight developers’ struggles to be seen by the public and mental health community as providing meaningful care while also feeling pressure from funders, the media, and the broader tech community to produce “cool” technology. I examine their boundary-work in making cool technology that is also serious therapy. Drawing on feminist STS, I argue that their interventions need to be evaluated not only on the basis of their goals, but on the intersectional visions of health and healing through which they configure patient populations and their mental function. To what extent can these new configurations of therapy be “cool” and still count as care?

The practice of secrecy in neuroimaging research Giulia Anichini, Uqam (Université du Québec à Montréal)

In the field of neuroimaging, scientists often refuse to communicate ‘negative’ results challenging the ideals of sharing and the free circulation of knowledge. Our ethnographic survey on brain mapping in the digital age highlights how publicizing anomalies or failures can be a risky practice. We observe that scientists are involved in strategic data omissions practices considering them as unpublishable. Specifically, we analyzed cases that excluded the publishing of dysfunctions affecting MRI image processing software. We observed that researchers discovering anomalies found themselves in precarious positions fearing that critiquing the informatics tool could trigger conflicts with the laboratory that designed the device. Also, these “negative” discoveries did not fit with the research team’s priority, whose objective was to discover differences between autistic and “normal” brains. The collective solutions used to cope with these technical problems were informal discussions and avoiding public confrontations. As many authors have pointed out, the gradual disappearance of “negative” results impacts not only the scientific literature but the scientist’s work as well. The growing promotion of spectacular discoveries and “positive” results lead scientists to “tinker” with their results and conceal anomalies.

Chair: Tabea Cornel, University of Pennsylvania

349. Affect and Emotion across Sites of Technoscience II

Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 5 - Public Garden

Affect and emotions not only connect the mind and the body, they also connect us to human and nonhuman others. Affects and emotions are ambivalent: they may both challenge and strengthen dominant social orders. This panel seeks, firstly, to understand the complex ways in which emotion and affect shape the production, circulation, routinization and cultural reception of science. Secondly, the panel charts the role of science and science studies in the emerging political landscapes of “post-truth” reality in which emotions often override factual evidence. The deployment and circulation of affect and emotions within and between sites of technoscience poses an urgent challenge for STS. To make sense of this challenge, we seek to connect empirical analyses of emotions at specific sites of technoscience to theorized accounts of the affective dynamics of technoscientific society. We hope to chart elusive and elucidatory affective dynamics produce? How are different sites of affect and science connected? Participants:

Participants:
From Bits to Bodies: Race, Sex, and the Affective Embodiment of Genomic Data Jennifer Hamilton, Hampshire College

In December 2014, UC Berkeley computational biologist Lior Pachter posted the results of his “tongue in cheek” in silico genome experiment on his personal blog, where he declared his discovery that “the perfect human is Puerto Rican” (Pachter).

Pachter conducted his experiment using computer modeling and statistical analysis on genetic code to produce his results. While Pachter ultimately disavowed the existence of a “perfect human” (and indeed argued that this was precisely the intention of his experiment), he nevertheless proposed that such a being would not be of “pure” genetic stock, but would rather be “admixed,” bringing together “good genes” from pre-colonial populations—defined as European, African, and Indigenous. In particular, Pachter suggested that the embodiment of the “perfect human” conjured in his in silico experiment might be Yuiza, a legendary sixteenth century Taíno woman. Through an exploration of the figure of “Yuiza in silico”, I discuss the affective embodiment of statistical representation in contemporary genomics, one that reflects longstanding precocciption with notions of racial mixture and the sexual desirability of mixed race—especially Puerto Rican—women. The main critique in this paper is that such ideas are presented as natural and obvious, both in terms of the kind of cultural sense that they make and the appeal to a particular ordering of the natural; these ideas simultaneously reproduce heteronormative evolutionary narratives while occluding the sexual violence of colonization and imperialism.

What Needs to Be Done, What is Worth Doing: Non-Knowledge, Emotions and Framing in the Relationship between Scientists and Social Movements Ana Maria Vara, National University of San Martin

The role of science in contentious politics has been one of the main themes in the beginning of STS, with prominent figures such as Dorothy Nelkin playing a leading role (1971, 1973, 1979). Recently, questions around this theme have regained interest, particularly in relation to the new political sociology of science and the challenges to understand those scientists “who join in struggle to make scientific knowledge more responsive to the needs of citizens” (Frickel and Moore, 2006: 3). Coincidentally, studies on ignorance and non-knowledge have grown in volume and complexity, giving rise to categories such as “undone science,” which focus on the absences of knowledge denounced by social movements (Woodhouse et al., 2002; Frickel et al., 2010). However, the question on the reasons why scientists engage in the production of knowledge demanded by social movements, has remain somehow out of focus in STS. The literature on social movements and contentious politics—with which STS have had a long dialogue—provide two approaches that may be fruitful in order to understand the engagement process. One has to do with framing processes, and the other one with the role of affect. In this presentation, I intend to analyze the case of the engagement of a scientist who ended up playing a leading role in the controversy around genetically modified crops in Argentina and internationally, focusing particularly on the emotions involved in the process, as well as on the framings that facilitated the connection between cognitive and affective aspects.

The Culture of Truth: Emotions in a Post-Factual World. Anna Durnova, Institute for Advanced Studies, Vienna - Technoscience and Societal Transformation

Post-Truth has been classified the word of the year 2016 by the Oxford Dictionary. What followed was a vivid defense of truth. Prominent scientific journals defended the rationality of scientific inquiry together with urgent calls for action. In the American context, this reflection culminated in the organization of a March for Science event and its media coverage with special regard to “truth”, “facts” and “post-truth”. This material is, at the same time, contextualized within editorials of scientific journals, and official statements of scientific associations addressing “post-truth” or calling for action in the context of March for Science. Applying the perspective of cultural sociology, which argues for a dialogical conceptualization of meaning, this paper investigates how emotions enter evidence-making. The semantic boundary of post-truth leads us to the semantic boundary of meaning and emotion. This paper shows how emotions evaluate range of actors and make them entitled to pronounce public concerns and as such have to be recognized as integral parts of knowledge-making with impact on policy processes. There is still time to take the truth back on board and counterattack post-facts: but we won’t fight post-factualism by highlighting rationality.

The Circulation of Affect and Emotions in Cultural Debates about Vaccines Venla Oikkonen, University of Helsinki

Social and cultural research on vaccine controversies has shown that anti-vaccine arguments are often emotionally charged. For example, anti-vaccine accounts that claim a connection between the MMR vaccine and autism often rely on emotional language of personally experienced or witnessed hardship and injustice. However, less attention has been paid to the ways in which affect organizes pro-vaccine discourses. In this paper, I approach anti- and pro-vaccine discourses as interconnected in terms of affective investments and the circulation of emotions. The paper focuses on the public controversy over the connection between the 2009 H1N1 vaccine Pandemrix and a reported increase in narcolepsy among vaccinated children. Through this analysis, I show how affect and emotions circulate across cultural debates about vaccines, and how invocations of emotion in anti- and pro-vaccine discourses emerge in relation to one another. I argue that we need to recognize these patterns of circulation in order to understand why vaccine research and vaccination programs engender particular responses in culture and society. At the same time, I ask how to explore affect and emotions across pro- and anti-vaccine discourses without losing sight of the crucial differences in the relationship between vaccine science and pro- and anti-vaccine arguments. In other words, how to account for the many ways in which affect and emotions structure pro-science discourses without dismissing science as irrational and thus invalid?

Chair: Mianna Meskus, University of Helsinki, Department of Social Research

350. Side-effects of (In)Sensible Participatory Technology Developments

Traditional (Closed) Panel

4:00 to 5:30 pm

Sheraton Boston: Floor 5 - Riverway

A peculiar case of insensibility in technosciences is raised by the increasing interest in participatory technology development (PTD). PTD enforces a dynamic that could be described as a double-bind situation for science and technology studies (STS) itself: STS insights often expose one-sided processes of technology development, insensitive to social issues, creating a clear rationale for PTD designs. However, an often unintended as well as (due to STS’s insensitivity) ignored outcome of PTD consists in the construction of a dualistic approach re-introducing a distinction between humans (rooted in nature) and technology (rooted in culture). The unintended problem reverses the calls to overcome historically-contingent, socially constructed distinctions, and the distinctions they engender (e.g. sex, gender, race, bodily fitness, etc.) and to promote the freedom to choose who—and whatever a conscious entity (cyborg) would like to be embodied or not). In the proposed session, I would like to gather scholars who have carried out research in the field of PTD with the intention of detecting the undesirable, mostly non-intended side effects of user integration and their relation to societal structures promoting hierarchical oppositions and social
inequality.

Participants:

Absences that Matter: Representations of Old Age in the CURE-Elderly-Personas
Susanne Oechsner, University of Vienna

In this paper I will offer an artifact analysis of the CURE-Elderly-Personas (CEPs), a set of 30 personas that was developed specifically for use in Ambient Assisted Living (AAL) projects. AAL is imagined as a solution to the problem of aging European societies. ICT-based systems shall enable individuals to age in place, lower costs for public health and social care, and establish business opportunities for companies. Throughout the research and development process technology developers imagine ideal users and use contexts that are then objectified in technological choices (Akrich, 1992). Personas as explicit user representations shall make ideas and assumptions about future users explicit and unify understanding across (transdisciplinary) teams. The CEPs' developers used data from the trans-European Survey of Health, Ageing and Retirement in Europe (SHARE) with the goal of building diverse yet representative personas that are emptied of situatedness and of specificity to a particular locale, and can thus move efficiently into AAL project spaces. I will show the work in transforming the SHARE-data into 30 personas and trace absences regarding who comes to stand in as representative(s) for older Europeans. By using the example of sexuality as an important element of human life, I will analyze how absences travel from one assemblage to the next, reinforcing sexuality and age as a configuration of taboo. Also, I will show expressing diversity in statistically meaningful units of analysis can lead to consequential deletions, ending up with representations of old age that are white, heterosexual and whose kinship relations equal consanguinity.

Federal Institutes: Alignment with the Institutional Proposal?
Rodrigo Rafael Fernandes, IFPR; Sidney Reinaldo da Silva, IFPR

In 2008, in the Lula Government, the Federal Institutes (IFs), Brazilian institutions of higher, basic and professional education, were presented as an important part of a new society project, manifested in their Science, Technology and Society conceptions, presented in their founding narratives based on the consolidation and strengthening of local social and cultural productive arrangements guided by forms of critical insertion of technologies in the communities, taking into account the mapping of social-economic and cultural development potential, with a view to sustainable territorial development and social technologies development. In Paraná, Federal Institute of Paraná (IFPR) has an event that brings together all of its community, the Extension, Teaching, Research and Innovation Seminars (SE2PIN). This paper aims to analyze the papers submitted in the SE2PINs Research category in order to identify the Science and Technology conceptions present in the works submitted by the academic community of the IFPR, observing trends and clashes and comparing them with the conceptions present in the creation documents of the IFs. This analysis is relevant to understand how the Science and Technology policy reaches students in their academic works. What is observed is the clash between different conceptions of Science and Technology in the results and research practices in the SE2PINs, which would tend towards more inclusive and democratic inclinations and valorization of local and regional development, or would tend to the consideration of a development of not necessarily social character, or would tend to reproduce the hegemonic academic models and research models made in universities.

Users as the Only Variable – Participation as Re-Education
Tim Seitz, Wissenschaftszentrum Berlin für Sozialforschung (WZB)

On part of decision makers in innovation policy participation is seen as a key component for the success of technology development projects and the acceptance of the technologies that are developed within these projects. But this awareness does not simply translate into a successful participatory technology development. Frequently, the main objective of technology development is already predefined and the participation of users is seen as a way to ensure a smooth processing. In our presentation, we draw upon data that we gathered within a project that deals with the integration of electric vehicles into smart grids. In this project, engineers and technical scientists work on quite clearly defined technological goals while the social scientists are confronted with the task to “secure” acceptance ex post. On the basis of expert interviews we will describe the different conceptualizations of user integration: The technical scientists on the one hand stress the necessity of participation but shift the arena of participation from the main objective of the project to peripheral aspects of the technology development. The social scientists on the other hand sway between a textbook idea of user-integration and a stubborn perturbing portrayal of users that need to be re-educated. In a situation in which the technological goal seems non-negotiable users quickly become the only variable. Thus, they need to be forced to use the technologies by ways of political control and a system of incentives, relapsing into the deficit model. With in-depth empirical insights, our presentation contributes to the study of PTB by highlighting side-effects that arise within technology development projects when participation is seen as a modular structural add-on and not an integral part of the technology development.

Locals in the Wasteland: The Unintended Effects of (In)Sensible Local Participatory Technology Development.
Céline Parotte, University of Liège

Implementing high-level radioactive wastes programs on a territory remains a sensitive step for nuclear waste management organizations. At this stage, the preferred solution of radioactive wastes programs, geological disposal, and the related technologies become increasingly visible and sometimes contested. This is why new instruments and strategies such as participatory technology developments (PDT) have been adopted to address the territorial development of geological disposal technology. Considering the coproduction between the host territory and the waste management program (Janasoff 2004), this presentation focuses on two sitting processes of radioactive wastes programs: France and Canada. It suggests analyzing the influence of in(sensible) local participatory technology development strategies and the influence of invited critics (Wynne 2007) on the industrial project. Our results show that frameworks of the participatory technology development have been designed very differently, with or without the involvement of publics. Consequently, two unintended effects of stemming out of the lack of information local committees have appeared. In France, a closed PDT turned invited critics into non-invited ones. In Canada, the openness of a PDT provoked a weak engagement of publics. In both cases, new socio-technical adjustments have occurred in the nuclear waste management programs. Upon that basis, we stress that the reasons for why the dichotomy between expert-based and participatory knowledges remains important and even reinforces the dualistic approach between nature and society, the technical and the social, or even the ground and the underground. Our methodology is based on official documents analysis, participatory observations, two ethnographic fieldworks (Bure – France and Manitouwadge, Ignace, Schreiber and Nipigon – Canada), and 82 semi-structured interviews. These interviews were conducted with French and Canadian nuclear waste management organizations’ members, regulators, local representatives and local consultation committees’ members.

Chair:
Diego Compagna, Technische Universität Berlin

351. Science Displays and the Politics of Representation
Traditional (Closed) Panel
4:00 to 5:30 pm
Sheraton Boston: Floor 5 - The Fens
Participants:

The Role of China’s Science and Technology Museums in Public Understanding of Science Xuan LU, National Academy of Innovation Strategy, China; Xiang LI, National Academy of Innovation Strategy, China

As science literacy have been seen as important foundation of innovation ability at national level, museums of science, technology and industry, including departments of such areas in general museums, have been playing an increasingly important role in public understanding of science. As a distinctive place that people get the access to science, the role of science and technology museum depends a lot on local context of STS, although Science is usually seen as universal in modern text. Based on the introduction of Science and Technology Museum Free Opening Policy (2015) proposed by Chinese Government and quantitative analysis from a national survey (2016) which hold by National Academy of Innovation Strategy to examine the effect of the policy, the public service of science and technology museums in China were assessed in this article. Furthermore, the view of science contained in science and technology museums was proposed, which appeal to rethink the role of science and technology museums from the degree of China’s STS background. It was pointed out the role that science and technology museums play in a society depends on both the local culture of science and the foundation of museum construction, rather than the theoretical concept and academic discussion. Consequently, introspection of construction of China’s science and technology museums was proposed.

Imagining Sustainability in The Crystal: Technological Solutions on Display Thaddeus Miller, Arizona State University; Kaethe Selkirk, Arizona State University

Technologies both old and new are being (re)imagined in light of the goals and values of sustainability. While the ability of society to develop and deploy new technologies has been acknowledged as a key component of any transition to sustainability, largely ignored is how sustainability acts as an imaginary that shapes science, technology and social order to attain desirable futures. Imaginaries of sustainability represent visions of social and natural well-being now and into the future. Like sociotechnical imaginaries, imaginaries of sustainability are both descriptive of potential futures and prescriptive about the futures that ought to be pursued. As such, these hybrid visions are political, cultural, social, normative and technological. The paper explores how sustainability problems and solutions are articulated through The Crystal -- an interactive, technological exhibition and green building owned and operation by the Siemens Corporation. Just as the Crystal Palace from London’s Great Exhibition in 1851 showcased the power and technology of the Industrial Revolution, The Crystal symbolizes “the dawn of a new, sustainable, age.” Drawing on literature from STS and museum studies, we examine how science and technology are positioned as solutions to sustainability through an analysis of the interactive exhibits in The Crystal as well as interviews with Siemens’s representatives and content analysis of relevant documents. The paper contributes to STS literature on the performative power of imaginaries and leverages this theoretical work to present a critique of the ability of the sustainability discourse to shape scientific and technological progress.

Marching off to the Science Wars Adam Shapiro

The April 2017 Science March on Washington DC and its sister sites is (in terms of the number of participants) probably the largest event in the history of American science. As with any act of public science performance, interactions among scientists and between scientific groups and the wider public engage in constant acts of demarcation and renegotiation of scientific boundaries. In the Science March, debates over what counts as “science”, whether science is “political” and the extent to which science and STEM advocacy can be separated from intersectional social justice concerns inform the creation of the march as a single coherent event. This paper draws on oral histories collected before, during and after the march to explore how scientific identity is defined within and beyond the Science March. The voices of organizers, participants, and critics show the complexities involved in creating and defending narratives of the March’s meaning and justification of its tactics. Debates among the scientists over whether the form of “science” being defended and presented by the March should be oppressive, neutral, or concomitant to social justice serve as proxies for the more general question of what counts as science. That these debates occur within scientific communities shows the extent to which the intellectual battles of the late twentieth-century “Science Wars” have become internalized within scientific communities themselves. These debates also show how the Science March, like other acts of public science performance, partake in what Guy Debord termed the “Society of the Spectacle.” Bringing together the perspectives recorded in these oral histories, the March becomes an even which outgrows any singular or centralized control.

Leveraging the Fight against Fascism to Reposition the Societal Role of Scientists Sarah Tuttle, University of Washington, Seattle; Chanda Prescod-Weinstein, University of Washington

In this world of focused and discreet attacks on marginalized individuals via the powers of the state, what roles or obligations do scientists (especially those funded by the self-same government) have? Historically, fascism has both targeted scientists based on identity while using complicit scientists to perpetrate their agenda. An oft repeated “fundamental” value of science is its apolitical and objective nature. But any student of history or practitioner of science should recognize the weak grounds for such a claim. Too frequently, the professional undercurrent is the more practically driven guide that one should not bite the hand that feeds you. Our group of scientists from marginalized identities (historically targeted under the rise of fascist regimes) joined together to call out the impending danger and the obligation incumbent on scientists to lead and join the fight against fascism. We report here on the outcomes of that excursion, including the surprising lack of pushback of our labelling the current administration as blatantly fascist - apparently this is something we have already, as a society, accepted. We discuss anticipated challenges moving forward, including combating the “mainstream” centrist responses (such as the “March for Science”) that continues to peddle the “apolitical” flavor of science boosterism that undermines practicing scientists in our attempts to shift science identity to a more intersectional, self-aware, and radical frame. We posit that scientists must embrace these obligations to engage in the work of anti-fascism, rather than leaving marginalized communities (and scientists) to pay the price.

Chair: Sarah Tuttle, University of Washington, Seattle

352. Student Section of 4S (6S) Happy Hour

Reception
5:30 to 7:00 pm
Sheraton Boston: Globe Cafe & Bar, 565 Boylston St.